



CONSTRUCTION EQUIPMENT

VOLVO L90H 623478 - DIESEL ENGINE



Sample No: VCP416266
Oil Type: CHEVRON DELO 400 SDE SAE 15W40
Job No:



SAMPLE INFORMATION

Sample Number	VCP416266	VCP258375	VCP229003	VCP228654
Sample Date	12 Jun 2024	14 Jan 2020	12 Aug 2019	18 Dec 2018
Machine Hours	6274	3499	3003	2508
Oil Hours	0	1000	0	0
Oil Changed	N/A	Changed	Changed	Changed
Sample Status	NORMAL	NORMAL	NORMAL	NORMAL

IAA - INSURANCE AUTO AUCTIONS - DONNA
 900 N HUTTO RD
 DONNA, TX
 US 78537
 Contact: DOLLY SANDOVAL
 YSANDOVAL@IAAI.COM
 T: (404)275-6868
 F: (404)366-1011



OIL CONDITION

Visc @ 100°C	cSt	13.5	13.9	13.4	13.52
Base Number (BN)	mg KOH/g	7.6	---	---	---
Oxidation (PA)	%	55	67	67	67

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 suitable for further service.



CONTAMINATION

Water	%	NEG	NEG	NEG	NEG
Soot %	%	0.1	0.3	0.3	0.4
Nitration (PA)	%	53	67	67	68
Sulfation (PA)	%	54	59	58	59
Glycol	%	NEG	NEG	NEG	NEG
Fuel	%	<1.0	<1.0	<1.0	<1.0
Silicon	ppm	5	6	7	8
Sodium	ppm	1	2	3	2
Potassium	ppm	2	0	2	0



WEAR METALS

Iron	ppm	2	8	9	15
Copper	ppm	<1	<1	<1	1
Lead	ppm	0	0	0	0
Tin	ppm	0	0	<1	0
Aluminum	ppm	6	10	11	16
Chromium	ppm	<1	<1	<1	1
Molybdenum	ppm	94	96	123	123
Nickel	ppm	0	<1	0	<1
Titanium	ppm	0	<1	0	<1
Silver	ppm	0	0	0	0
Manganese	ppm	0	<1	<1	<1
Vanadium	ppm	0	0	0	0



ADDITIVES

Calcium	ppm	1406	1566	1440	1431
Magnesium	ppm	469	496	536	551
Zinc	ppm	1185	1006	800	825
Phosphorus	ppm	904	811	686	728
Barium	ppm	0	0	0	0
Boron	ppm	354	284	253	204

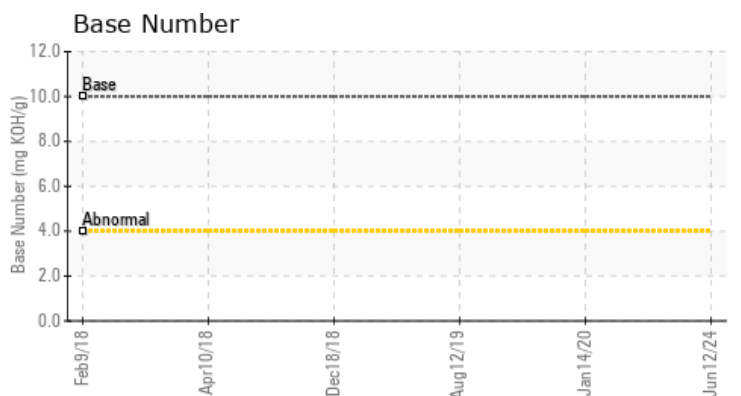
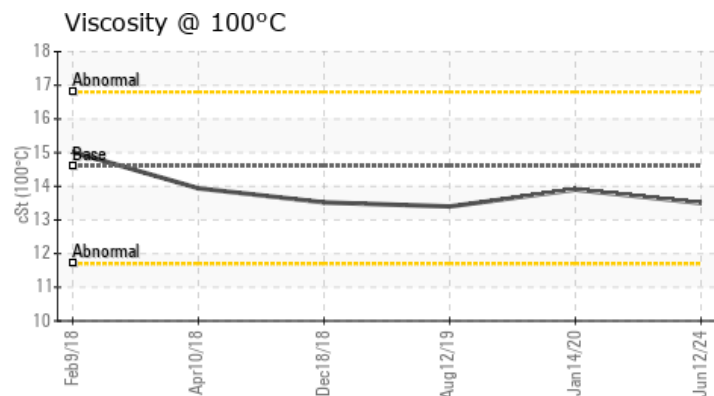
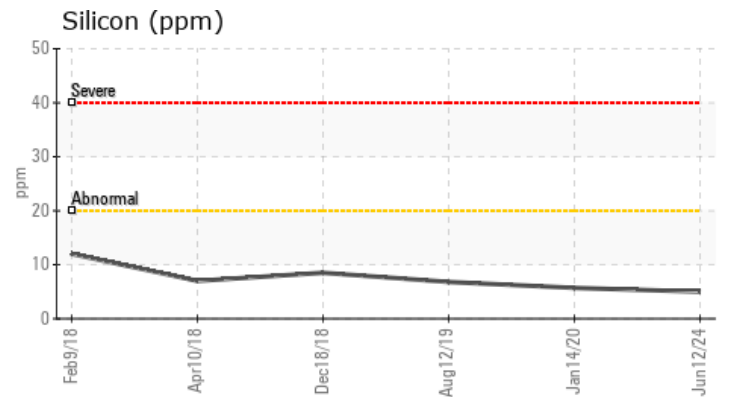
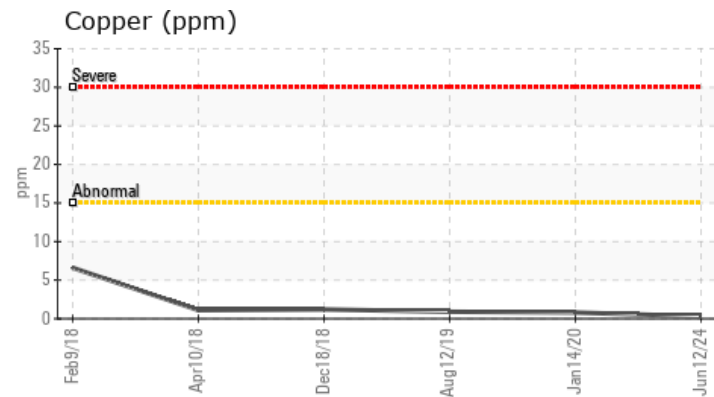
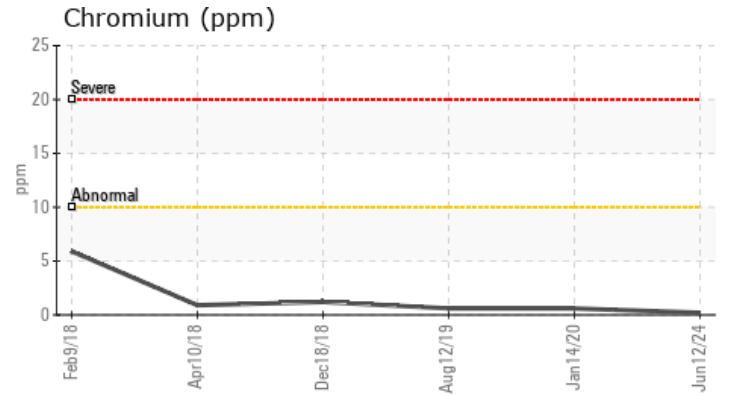
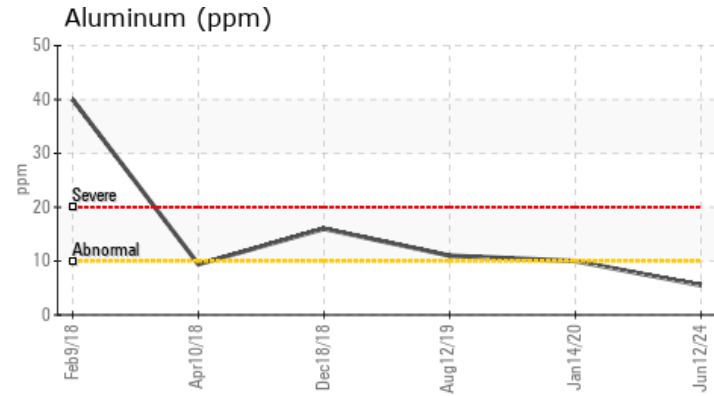
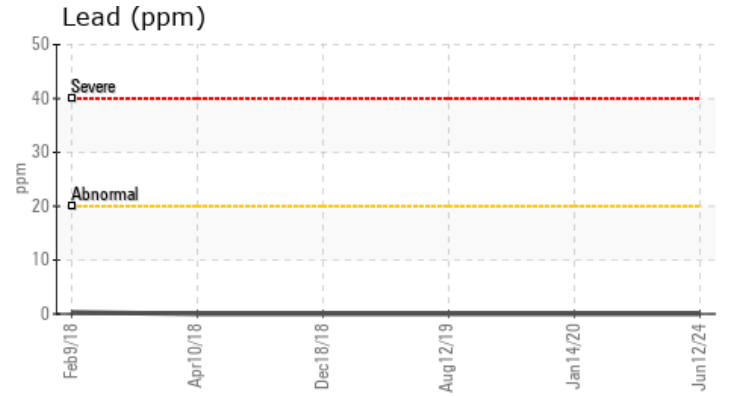
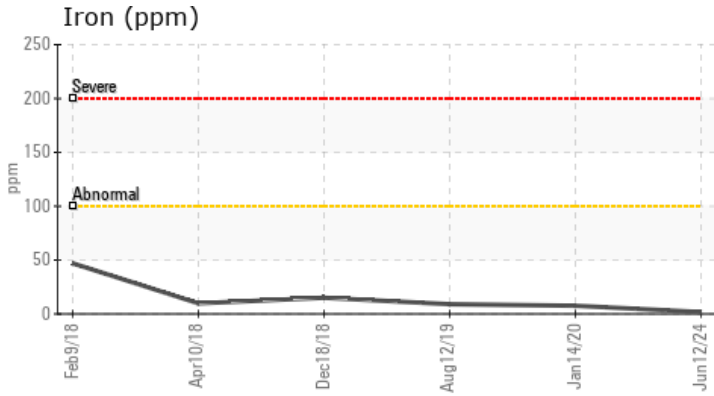
Depot: INSDON
Unique No: 11098960
Signed: Wes Davis
Report Date: 27 Jun 2024



CONSTRUCTION EQUIPMENT



GRAPHS





CONSTRUCTION EQUIPMENT

W0606875 VOLVO L90H 623478 - TRANSMISSION (AUTO)



Sample No: VCP258373
Oil Type: VOLVO AT 102
Job No: W0606875



SAMPLE INFORMATION

Sample Number	VCP258373	VCP227507	VCP228099	VCP228090
Sample Date	14 Jan 2020	18 Dec 2018	10 Apr 2018	09 Feb 2018
Machine Hours	3499	2508	1935	1777
Oil Hours	1000	0	1000	0
Oil Changed	N/A	Not Changd	Not Changd	Changed
Sample Status	ABNORMAL	NORMAL	NORMAL	NORMAL

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 900 N HUTTO RD
 DONNA, TX
 US 78537
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 YSANDOVAL@IAAI.COM
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OIL CONDITION

Visc @ 40°C	cSt	26.6	27.33	28.19	26.7
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CONTAMINATION

Water	%	NEG	NEG	NEG	NEG
Silicon	ppm	8	6	5	9
Sodium	ppm	4	4	3	6
Potassium	ppm	7	3	1	3

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 fluid. The condition of the fluid is acceptable for the time in service.



WEAR METALS

Iron	ppm	34	30	26	55
Copper	ppm	14	9	4	7
Lead	ppm	0	2	0	<1
Tin	ppm	0	0	0	0
Aluminum	ppm	2	1	<1	2
Chromium	ppm	<1	<1	<1	<1
Molybdenum	ppm	<1	0	<1	0
Nickel	ppm	<1	<1	<1	<1
Titanium	ppm	0	0	0	0
Silver	ppm	0	0	0	0
Manganese	ppm	4	4	4	7
Vanadium	ppm	0	0	0	0



ADDITIVES

Calcium	ppm	101	100	95	153
Magnesium	ppm	4	5	4	1
Zinc	ppm	59	50	47	68
Phosphorus	ppm	170	194	177	178
Barium	ppm	<1	<1	<1	2
Boron	ppm	50	58	60	52

Depot: INSDON
Unique No: 8892808
Signed: Don Baldrige
Report Date: 22 Jan 2020

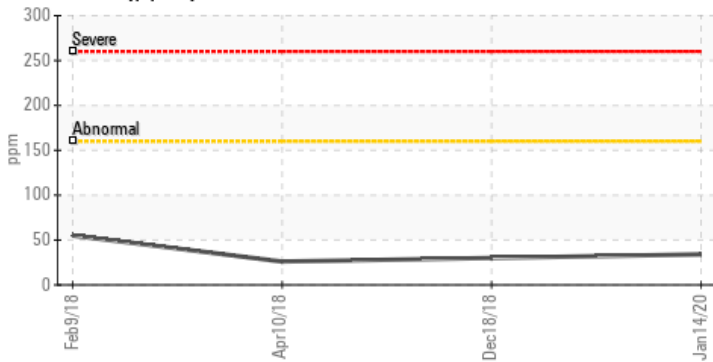


CONSTRUCTION EQUIPMENT

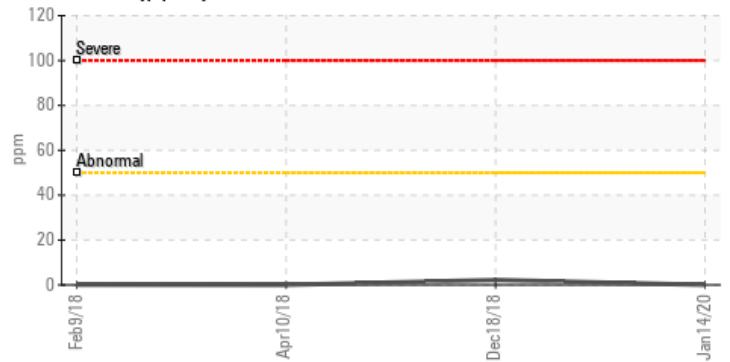


GRAPHS

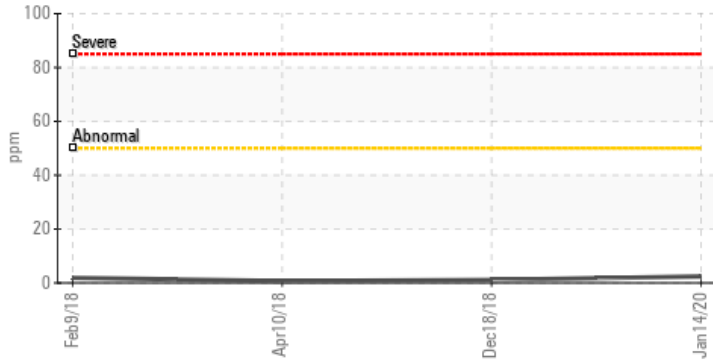
Iron (ppm)



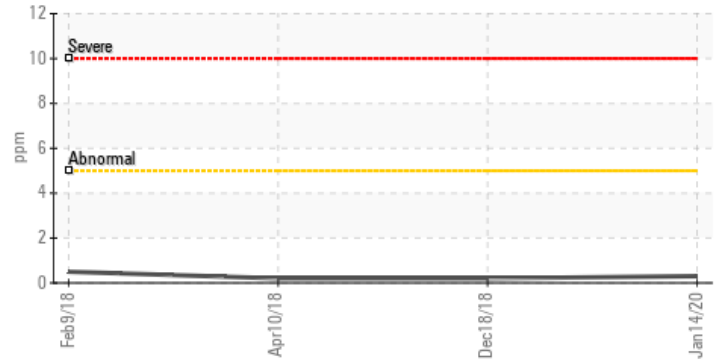
Lead (ppm)



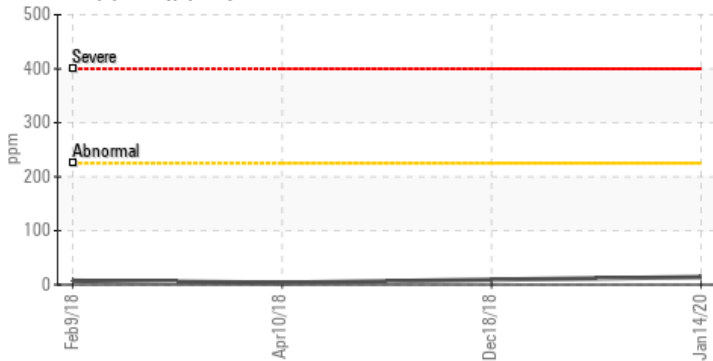
Aluminum (ppm)



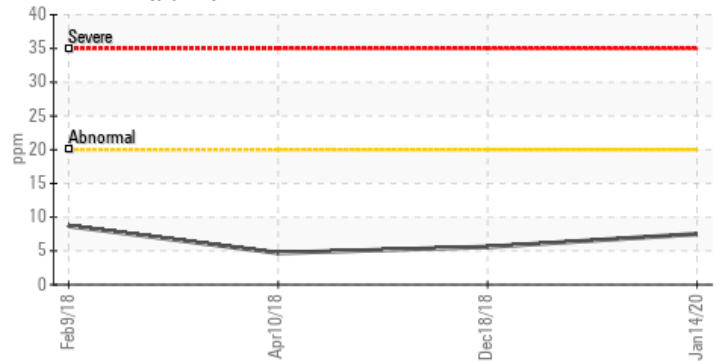
Chromium (ppm)



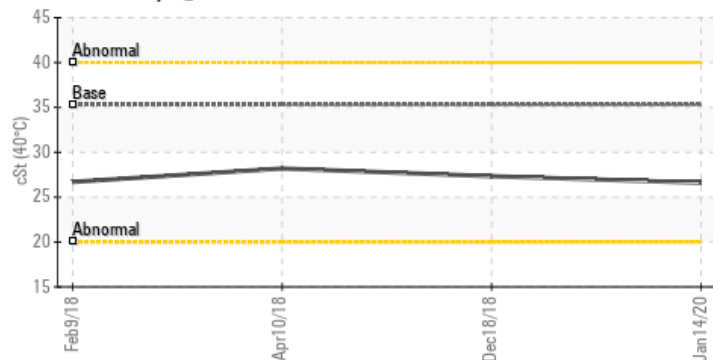
Copper (ppm)



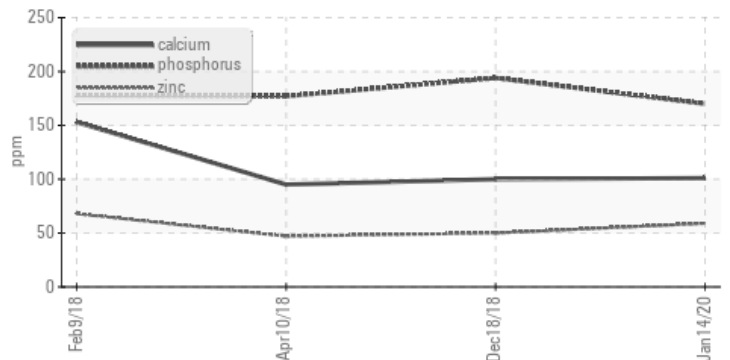
Silicon (ppm)



Viscosity @ 40°C



Additives





CONSTRUCTION EQUIPMENT

W0606875 VOLVO L90H 623478 - HYDRAULIC SYSTEM



Sample No: VCP259056
Oil Type: VOLVO SUPER HYDRAULIC OIL 46
Job No: W0606875



SAMPLE INFORMATION

Sample Number	VCP259056	VCP229336	VCP229347	---
Sample Date	14 Jan 2020	18 Dec 2018	10 Apr 2018	---
Machine Hours	3499	2508	1935	---
Oil Hours	0	0	1935	---
Oil Changed	N/A	Not Changd	Not Changd	---
Sample Status	ABNORMAL	NORMAL	ATTENTION	---

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 900 N HUTTO RD
 DONNA, TX
 US 78537
 Contact: DOLLY SANDOVAL
 YSANDOVAL@IAAI.COM
 T: (404)275-6868
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OIL CONDITION

Visc @ 40°C	cSt	40.2	40.79	40.35	---
Acid Number (AN)	mg KOH/g	0.306	0.295	0.320	---



CONTAMINATION

Water	%	NEG	NEG	NEG	---
Particles >4µm		26560	5097	11001	---
Particles >6µm		5856	911	2114	---
Particles >14µm		▲ 171	64	85	---
ISO 4406:1999 (c)		22/20/15	20/17/13	21/18/14	---
Silicon	ppm	13	12	13	---
Sodium	ppm	2	2	2	---
Potassium	ppm	2	4	<1	---

Diagnosis

We recommend you service the filters on this component. Resample at the next service interval to monitor. All component wear rates are normal. There is a high 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	6	5	5	---
Copper	ppm	5	4	4	---
Lead	ppm	3	<1	1	---
Tin	ppm	<1	0	0	---
Aluminum	ppm	<1	<1	<1	---
Chromium	ppm	<1	<1	<1	---
Molybdenum	ppm	<1	0	0	---
Nickel	ppm	0	<1	0	---
Titanium	ppm	0	0	0	---
Silver	ppm	0	0	0	---
Manganese	ppm	<1	0	<1	---
Vanadium	ppm	0	0	0	---



ADDITIVES

Calcium	ppm	90	96	91	---
Magnesium	ppm	2	2	<1	---
Zinc	ppm	400	440	446	---
Phosphorus	ppm	323	354	337	---
Barium	ppm	0	0	0	---
Boron	ppm	2	2	1	---

Depot: INSDON
Unique No: 8892556
Signed: Jonathan Hester
Report Date: 22 Jan 2020

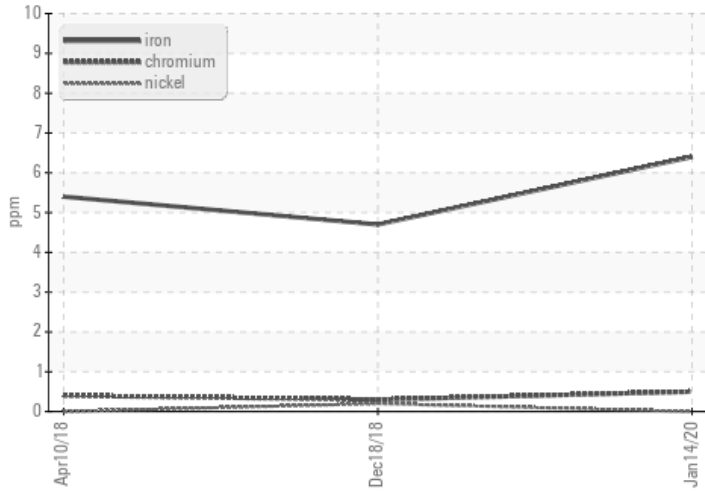


CONSTRUCTION EQUIPMENT

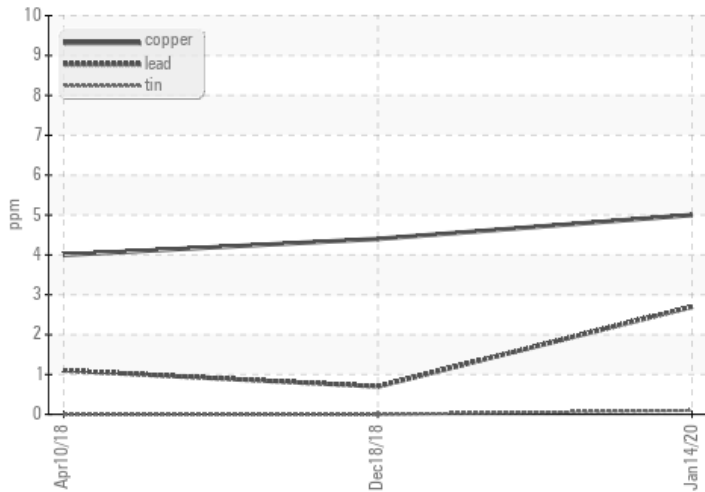


VOLVO GRAPHS

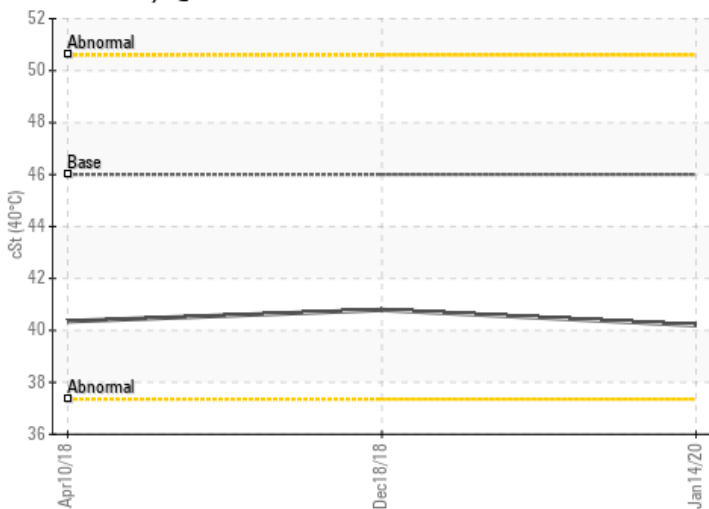
Ferrous Alloys



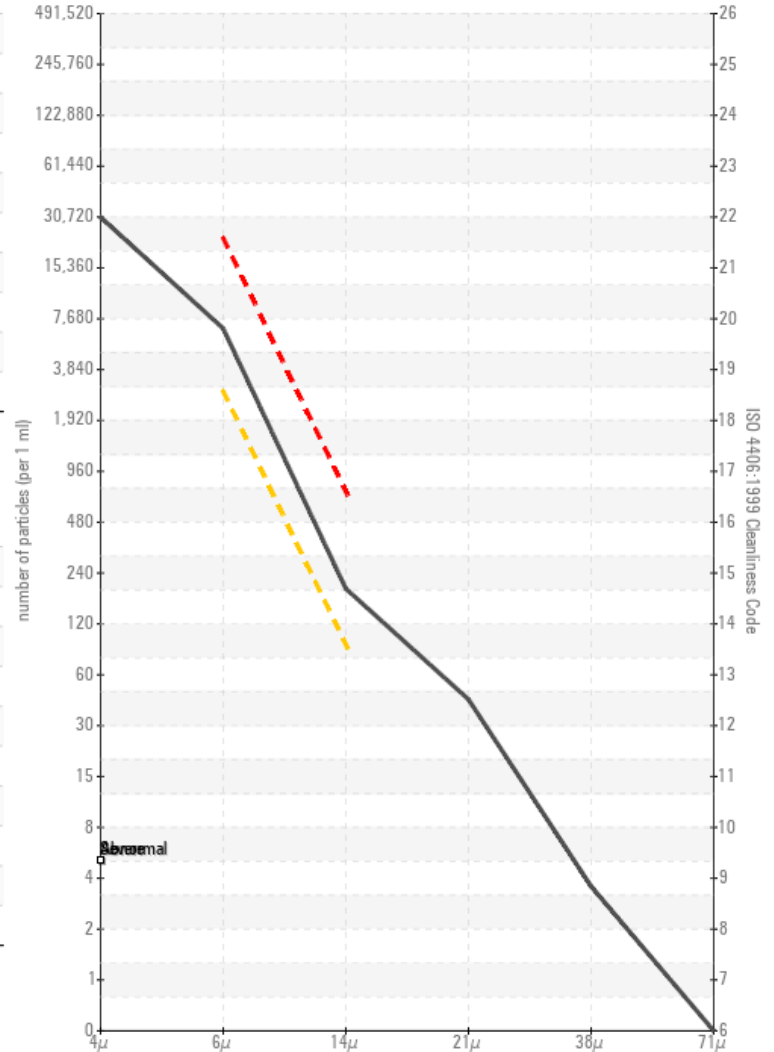
Non-ferrous Metals



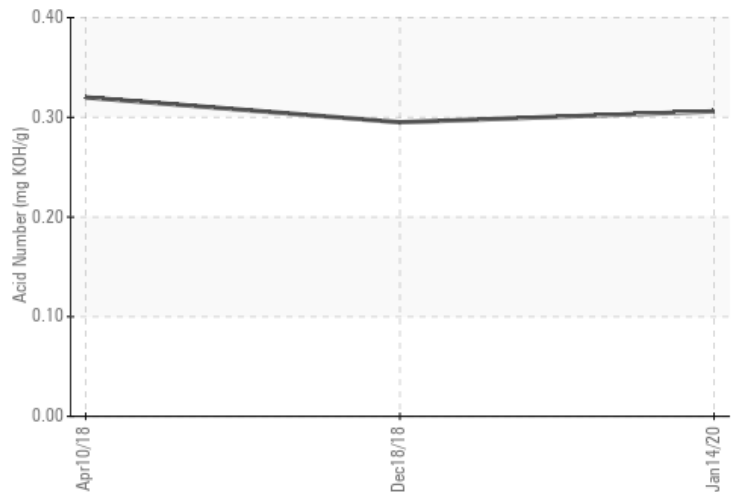
Viscosity @ 40°C



Particle Count



Acid Number





CONSTRUCTION EQUIPMENT

W0606875 VOLVO L90H 623478 - FRONT AXLE



Sample No: VCP259072
Oil Type: VOLVO WB 102
Job No: W0606875



SAMPLE INFORMATION

Sample Number	VCP259072	VCP227509	VCP228995	VCP228094
Sample Date	14 Jan 2020	18 Dec 2018	10 Apr 2018	09 Feb 2018
Machine Hours	3499	2508	1935	1777
Oil Hours	0	0	1000	0
Oil Changed	Not Changd	N/A	Not Changd	Changed
Sample Status	NORMAL	NORMAL	ABNORMAL	NORMAL

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 900 N HUTTO RD
 DONNA, TX
 US 78537
 Contact: DOLLY SANDOVAL
 YSANDOVAL@IAAI.COM
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 F: (404)366-1011



OIL CONDITION

Visc @ 40°C	cSt	40.0	40.11	40.53	40.11
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CONTAMINATION

Water	%	NEG	NEG	▲ 0.230	NEG
Silicon	ppm	10	10	10	13
Sodium	ppm	1	2	2	3
Potassium	ppm	0	7	<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	42	32	26	105
Copper	ppm	<1	<1	<1	1
Lead	ppm	0	0	0	<1
Tin	ppm	0	0	<1	0
Aluminum	ppm	<1	<1	<1	<1
Chromium	ppm	1	1	1	4
Molybdenum	ppm	<1	0	<1	3
Nickel	ppm	<1	<1	<1	<1
Titanium	ppm	<1	<1	0	0
Silver	ppm	0	0	0	0
Manganese	ppm	2	2	2	8
Vanadium	ppm	0	0	0	0



ADDITIVES

Calcium	ppm	3883	4377	3958	4232
Magnesium	ppm	9	10	10	13
Zinc	ppm	1591	1694	1521	1631
Phosphorus	ppm	1184	1358	1299	1268
Barium	ppm	0	0	0	0
Boron	ppm	105	118	118	116

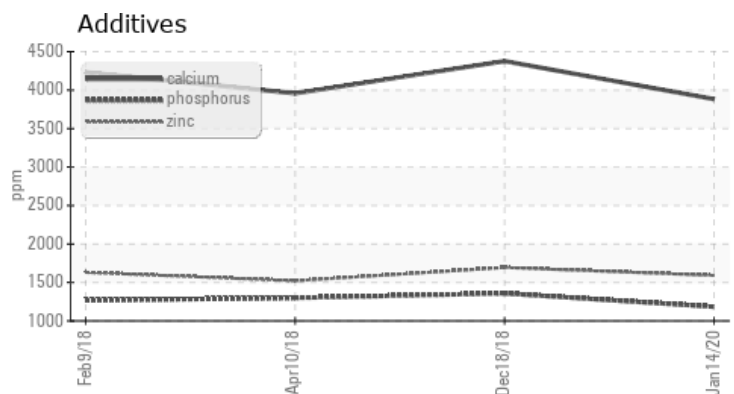
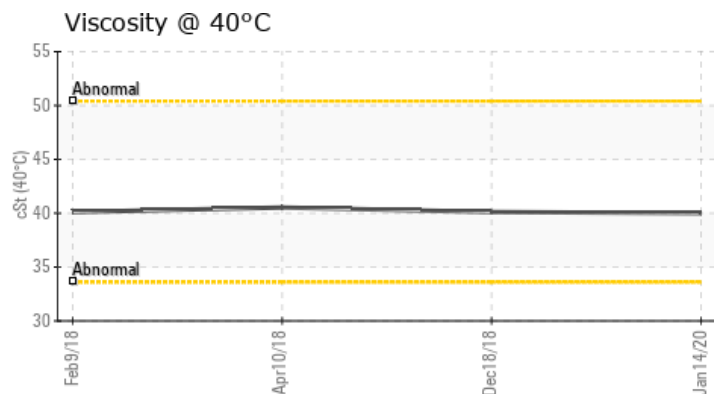
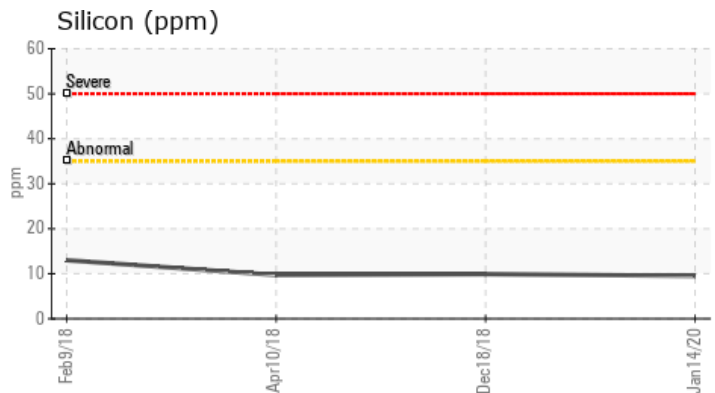
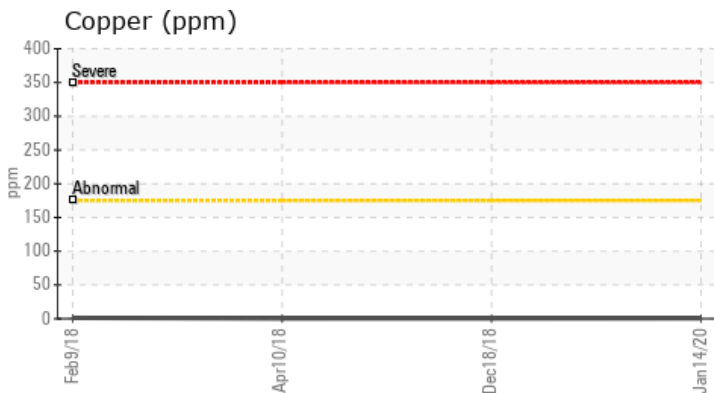
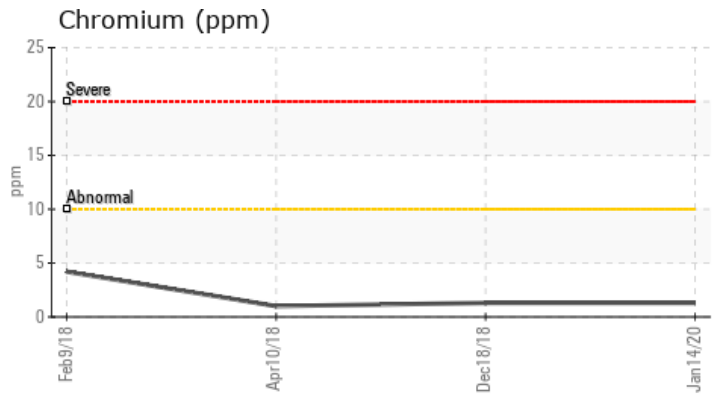
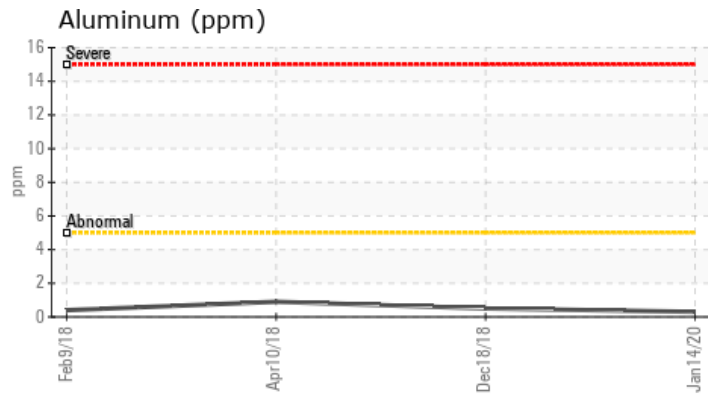
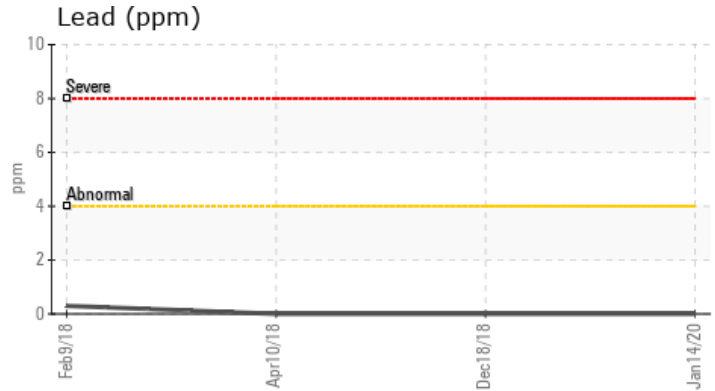
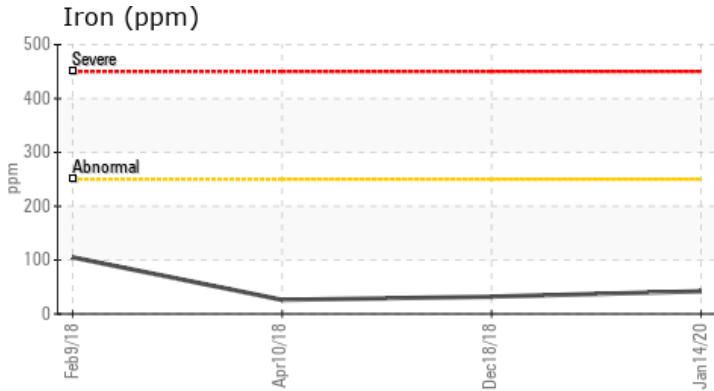
Depot: INSDON
Unique No: 8892790
Signed: Wes Davis
Report Date: 22 Jan 2020



CONSTRUCTION EQUIPMENT



GRAPHS





CONSTRUCTION EQUIPMENT

W0606875 VOLVO L90H 623478 - REAR AXLE



Sample No: VCP258372
Oil Type: VOLVO WB 102
Job No: W0606875



SAMPLE INFORMATION

Sample Number	VCP258372	VCP228512	VCP228091	VCP228097
Sample Date	14 Jan 2020	18 Dec 2018	10 Apr 2018	09 Feb 2018
Machine Hours	3499	2508	1935	1777
Oil Hours	0	0	1000	0
Oil Changed	Not Changd	N/A	Not Changd	Changed
Sample Status	NORMAL	NORMAL	NORMAL	NORMAL

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 900 N HUTTO RD
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 YSANDOVAL@IAAI.COM
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OIL CONDITION

Visc @ 40°C	cSt	40.1	43.28	42.4	40.48
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CONTAMINATION

Water	%	NEG	NEG	NEG	NEG
Silicon	ppm	12	12	10	18
Sodium	ppm	2	2	2	4
Potassium	ppm	0	0	<1	3

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	44	33	20	111
Copper	ppm	8	7	6	49
Lead	ppm	0	0	0	0
Tin	ppm	0	0	<1	2
Aluminum	ppm	1	1	<1	1
Chromium	ppm	1	1	<1	4
Molybdenum	ppm	<1	0	<1	3
Nickel	ppm	<1	<1	0	<1
Titanium	ppm	<1	<1	0	0
Silver	ppm	0	0	0	0
Manganese	ppm	2	2	2	7
Vanadium	ppm	0	0	0	0



ADDITIVES

Calcium	ppm	3821	4395	3991	4289
Magnesium	ppm	10	10	10	15
Zinc	ppm	1569	1710	1531	1630
Phosphorus	ppm	1156	1328	1297	1256
Barium	ppm	0	0	0	0
Boron	ppm	107	121	118	118

Depot: INSDON
Unique No: 8892789
Signed: Wes Davis
Report Date: 22 Jan 2020

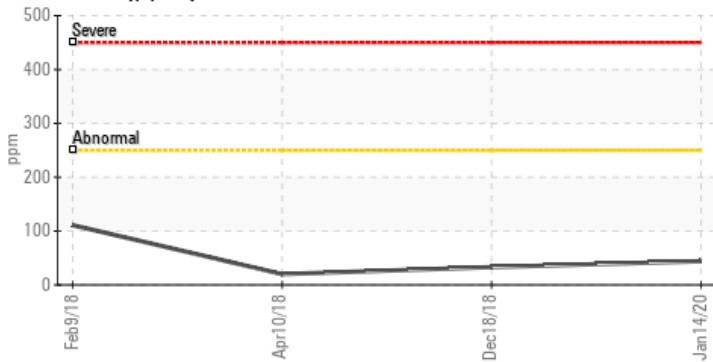


CONSTRUCTION EQUIPMENT

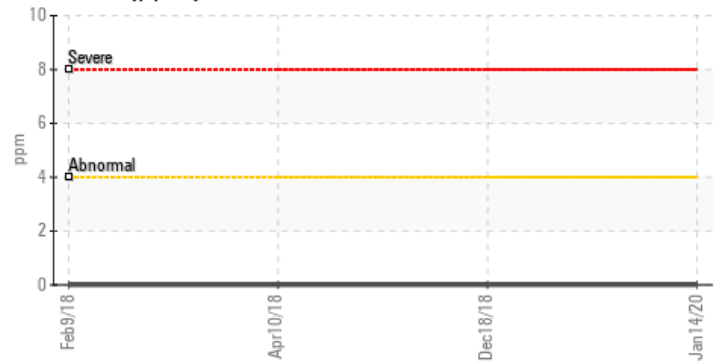


GRAPHS

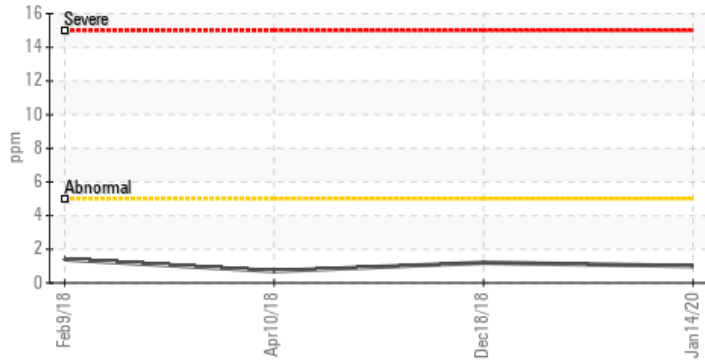
Iron (ppm)



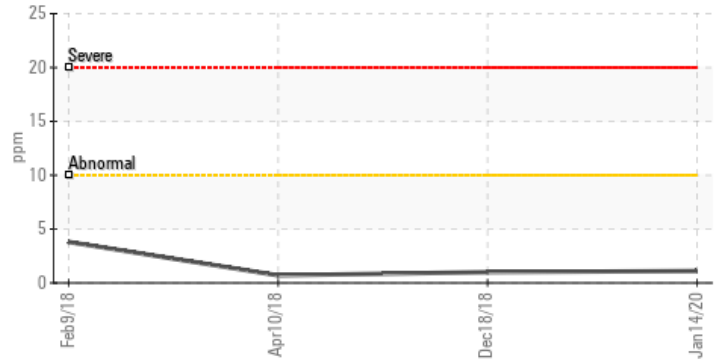
Lead (ppm)



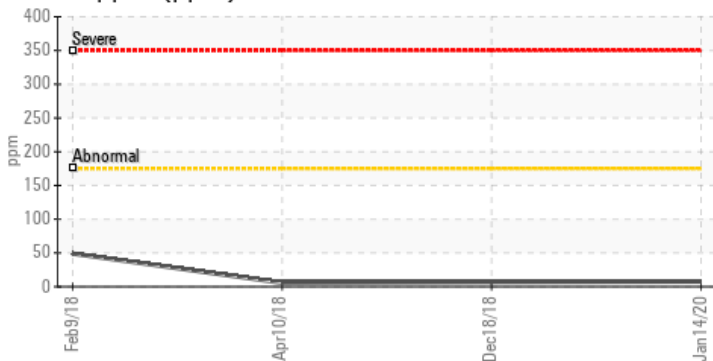
Aluminum (ppm)



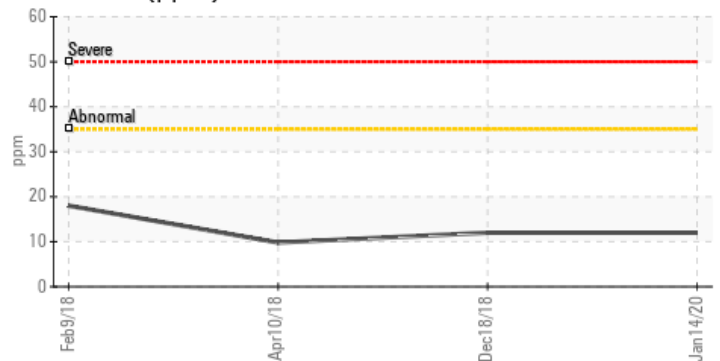
Chromium (ppm)



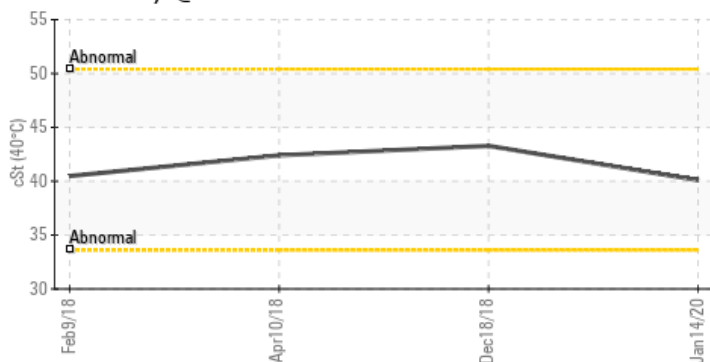
Copper (ppm)



Silicon (ppm)



Viscosity @ 40°C



Additives

