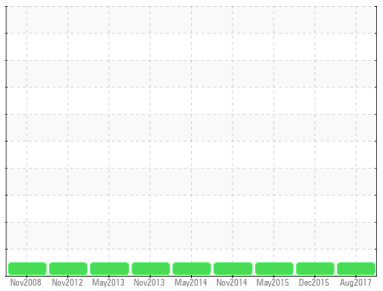
OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL

Machine Id
G5-01111 Approved Boat (FRC) (S/N SSEDC 01111)
Component
Diesel Engine
Fluid
VOLVO ULTRA DIESEL ENGINE OIL 15W40 VDS-3 (10 LTR)

DIAGNOSIS

Recommendation
Confirm the source of the lubricant being utilized for top-up/fill. Resample at the next service interval to monitor.

Wear
Metal levels are typical for a new component breaking in.

Contamination
There is no indication of any contamination in the component.

Fluid Condition
Additive levels indicate the addition of a different brand, or type of oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**WC62007373**	WC62006448	WC62006429
Sample Date		Client Info		**11 Aug 2017**	15 Dec 2015	15 May 2015
Machine Age	hrs	Client Info		**142**	115	176
Oil Age	hrs	Client Info		**0**	0	0
Oil Changed		Client Info		**Not Changd**	Changed	Not Changd
Sample Status				**NORMAL**	NORMAL	NORMAL

CONTAMINATION		method	limit/base	current	history1	history2
Fuel		WC Method	>6.0	**<1.0**	<1.0	<1.0
Water		WC Method	>0.2	**NEG**	NEG	NEG
Glycol		WC Method		**NEG**	NEG	NEG

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185(m)	>100	**4**	4	3
Chromium	ppm	ASTM D5185(m)	>20	**<1**	<1	<1
Nickel	ppm	ASTM D5185(m)	>2	**<1**	<1	<1
Titanium	ppm	ASTM D5185(m)		**<1**	0	<1
Silver	ppm	ASTM D5185(m)	>2	**0**	0	0
Aluminum	ppm	ASTM D5185(m)	>25	**1**	1	1
Lead	ppm	ASTM D5185(m)	>40	**2**	<1	<1
Copper	ppm	ASTM D5185(m)	>330	**2**	1	1
Tin	ppm	ASTM D5185(m)	>15	**<1**	<1	<1
Antimony	ppm	ASTM D5185(m)		**1**	2	1
Vanadium	ppm	ASTM D5185(m)		**0**	0	0
Beryllium	ppm	ASTM D5185(m)		**0**	0	0
Cadmium	ppm	ASTM D5185(m)		**0**	0	0

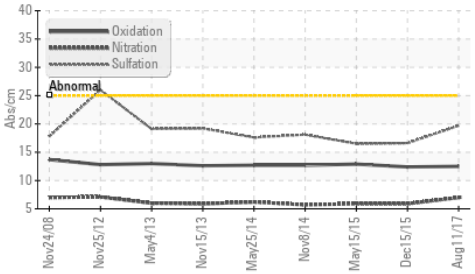
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)	2.5	**1**	1	1
Barium	ppm	ASTM D5185(m)	0.0	**<1**	<1	0
Molybdenum	ppm	ASTM D5185(m)	0.7	**38**	38	38
Manganese	ppm	ASTM D5185(m)	0.0	**<1**	<1	<1
Magnesium	ppm	ASTM D5185(m)	256	**803**	813	758
Calcium	ppm	ASTM D5185(m)	2057	**1170**	1209	1140
Phosphorus	ppm	ASTM D5185(m)	935	**994**	1029	1022
Zinc	ppm	ASTM D5185(m)	1223	**1198**	1241	1171
Sulfur	ppm	ASTM D5185(m)	4079	**3115**	3142	3169
Lithium	ppm	ASTM D5185(m)		**<1**	<1	<1

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>25	**10**	8	9
Sodium	ppm	ASTM D5185(m)		**6**	2	1
Potassium	ppm	ASTM D5185(m)	>20	**2**	1	1

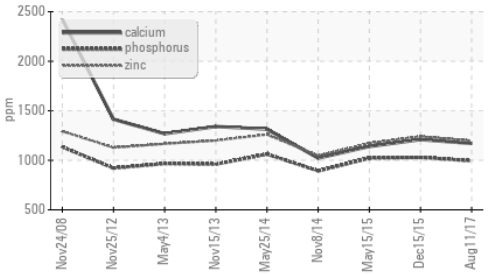
INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	ASTM D7844*	>3	**0**	0	0
Nitration	Abs/cm	ASTM D7624*		**7.0**	5.9	5.9
Sulfation	Abs/.1mm	ASTM D7415*		**19.7**	16.6	16.5

OIL ANALYSIS REPORT

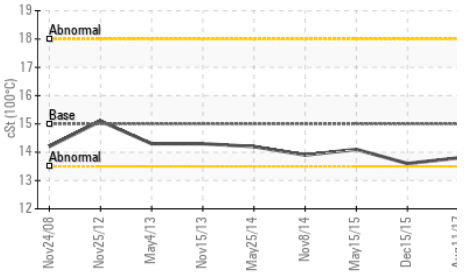
FT-IR (Direct Trend)



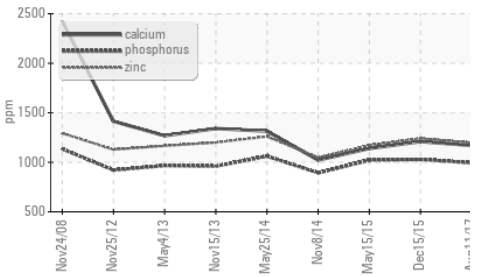
Additives



Viscosity @ 100°C



Additives



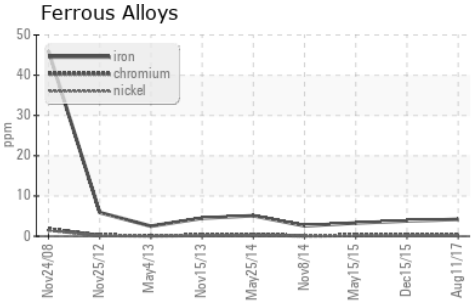
FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	ASTM D7414*		**12.5**	12.4	12.9
Base Number (BN)	mg KOH/g	ASTM D2896*	10	**8.67**	9.34	10.6

VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	Visual*	NONE	**VLITE**	---	---
Yellow Metal	scalar	Visual*	NONE	**NONE**	---	---
Precipitate	scalar	Visual*	NONE	**NONE**	---	---
Silt	scalar	Visual*	NONE	**NONE**	---	---
Debris	scalar	Visual*	NONE	**NONE**	---	---
Sand/Dirt	scalar	Visual*	NONE	**NONE**	---	---
Appearance	scalar	Visual*	NORML	**NORML**	---	---
Odor	scalar	Visual*	NORML	**NORML**	---	---
Emulsified Water	scalar	Visual*	>0.2	**NEG**	NEG	NEG
Free Water	scalar	Visual*		**NEG**	NEG	NEG

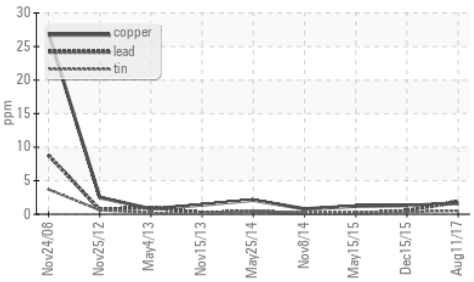
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D7279(m)	15.0	**13.8**	13.6	14.1

GRAPHS

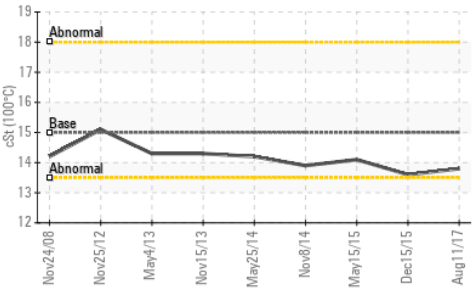
Ferrous Alloys



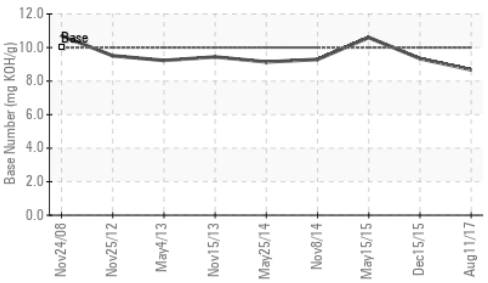
Non-ferrous Metals



Viscosity @ 100°C



Base Number



ISO 17025:2017 Accredited Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : WC62007373 **Received** : 23 Aug 2017
Lab Number : 02165167 **Tested** : 23 Aug 2017
Unique Number : 4552229 **Diagnosed** : 23 Aug 2017 - Kevin Marson
Test Package : MAR 2 (Additional Tests: Visual)

To discuss this sample report, contact Customer Service at 1-800-268-2131.
Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab.
Validity of results and interpretation are based on the sample and information as supplied.

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