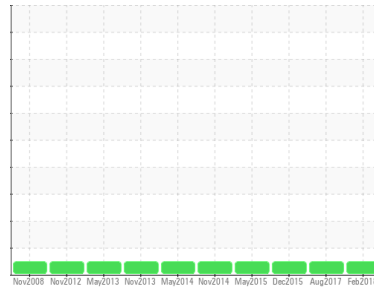


OIL ANALYSIS REPORT

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

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 oil.

Fluid Condition

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		PC62007675	WC62007373	WC62006448
Sample Date	Client Info		19 Feb 2018	11 Aug 2017	15 Dec 2015
Machine Age	hrs	Client Info	146	142	115
Oil Age	hrs	Client Info	31	0	0
Oil Changed	Client Info		Not Chngd	Not Chngd	Changed
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	5	4	4
Chromium	ppm	ASTM D5185(m)	>20	<1	<1	<1
Nickel	ppm	ASTM D5185(m)	>2	<1	<1	<1
Titanium	ppm	ASTM D5185(m)		<1	<1	0
Silver	ppm	ASTM D5185(m)	>2	0	0	0
Aluminum	ppm	ASTM D5185(m)	>25	1	1	1
Lead	ppm	ASTM D5185(m)	>40	1	2	<1
Copper	ppm	ASTM D5185(m)	>330	2	2	1
Tin	ppm	ASTM D5185(m)	>15	<1	<1	<1
Antimony	ppm	ASTM D5185(m)		1	1	2
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	0	<1	<1
Molybdenum	ppm	ASTM D5185(m)	0.7	39	38	38
Manganese	ppm	ASTM D5185(m)	0.0	0	<1	<1
Magnesium	ppm	ASTM D5185(m)	256	773	803	813
Calcium	ppm	ASTM D5185(m)	2057	1133	1170	1209
Phosphorus	ppm	ASTM D5185(m)	935	991	994	1029
Zinc	ppm	ASTM D5185(m)	1223	1213	1198	1241
Sulfur	ppm	ASTM D5185(m)	4079	3016	3115	3142
Lithium	ppm	ASTM D5185(m)		<1	<1	<1

CONTAMINANTS

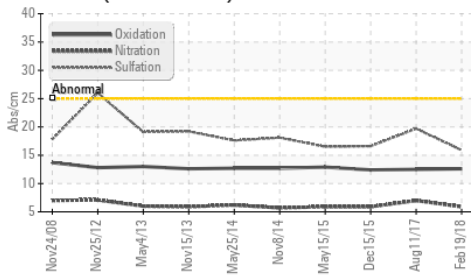
	method	limit/base	current	history1	history2	
Silicon	ppm	ASTM D5185(m)	>25	10	10	8
Sodium	ppm	ASTM D5185(m)		3	6	2
Potassium	ppm	ASTM D5185(m)	>20	3	2	1

INFRA-RED

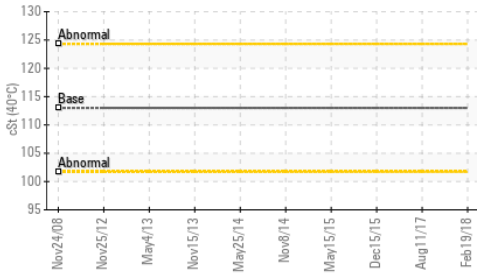
	method	limit/base	current	history1	history2	
Soot %	%	ASTM D7844*	>3	0	0	0
Nitration	Abs/cm	ASTM D7624*	>25	5.9	7.0	5.9
Sulfation	Abs./1mm	ASTM D7415*	>35	15.9	19.7	16.6

OIL ANALYSIS REPORT

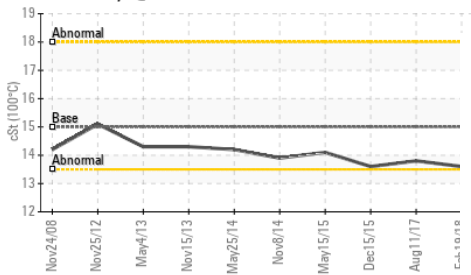
FT-IR (Direct Trend)



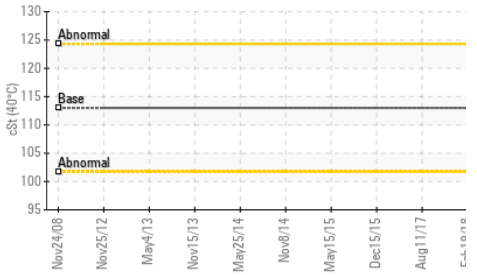
Viscosity @ 40°C



Viscosity @ 100°C



Viscosity @ 40°C



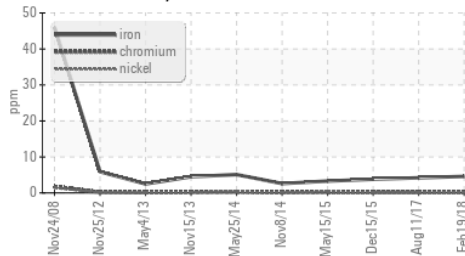
FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	ASTM D7414*	>25	12.6	12.5	12.4
Base Number (BN)	mg KOH/g	ASTM D2896*	10	8.60	8.67	9.34

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

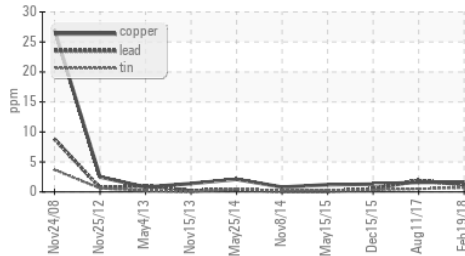
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D7279(m)	113	98.4	---	---
Visc @ 100°C	cSt	ASTM D7279(m)	15.0	13.6	13.8	13.6
Viscosity Index (VI)	Scale	ASTM D2270*	138	138	---	---

GRAPHS

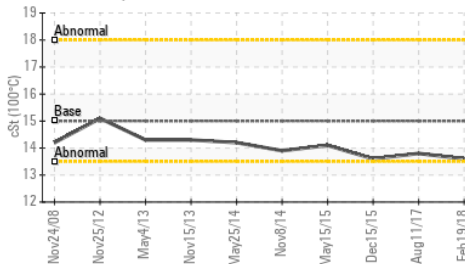
Ferrous Alloys



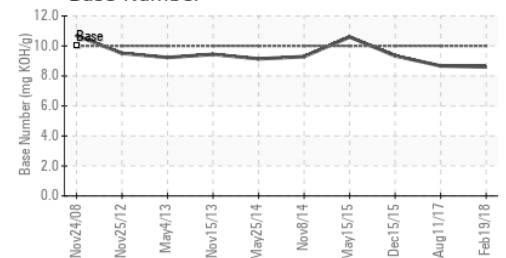
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : PC62007675
Lab Number : **02200555**
Unique Number : 4643672
Test Package : MAR 2 (Additional Tests: KV40, VI, Visual)

CANADIAN COAST GUARD
 CCGS GRIFFON, PO BOX 1000, 401 KING ST.W
 Prescott, ON
 CA K6V 5T3
 Contact: Laurie Bosley
 Laurie.Bosley@dfo-mpo.gc.ca

*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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