

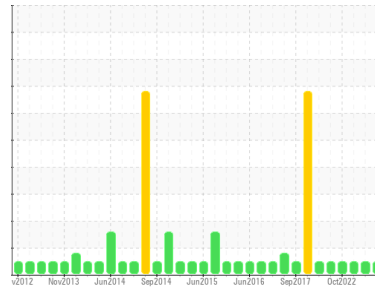


OIL ANALYSIS REPORT



Machine Id
Stbd Main Engine (S/N T2P01047)
 Component
Starboard Main Engine
 Fluid
CAT DIESEL ENGINE OIL 15W40 (68 LTR)

Sample Rating Trend



NORMAL



DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

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			WC0829991	WC0829970	WC0754143
Sample Date	Client Info			28 Apr 2024	15 Oct 2023	07 Jun 2023
Machine Age	hrs	Client Info		19500	19000	18000
Oil Age	hrs	Client Info		500	500	500
Oil Changed	Client Info			Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL

CONTAMINATION		method	limit/base	current	history1	history2
Fuel	WC Method	>4.0		<1.0	<1.0	<1.0
Water	WC Method	>0.1		NEG	NEG	NEG
Glycol	WC Method			NEG	NEG	NEG

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185(m)	>120	7	10	10
Chromium	ppm	ASTM D5185(m)	>10	<1	<1	<1
Nickel	ppm	ASTM D5185(m)	>5	<1	0	<1
Titanium	ppm	ASTM D5185(m)		0	0	0
Silver	ppm	ASTM D5185(m)	>5	<1	<1	0
Aluminum	ppm	ASTM D5185(m)	>20	<1	<1	<1
Lead	ppm	ASTM D5185(m)	>40	<1	<1	1
Copper	ppm	ASTM D5185(m)	>300	6	10	8
Tin	ppm	ASTM D5185(m)	>10	0	0	0
Antimony	ppm	ASTM D5185(m)		0	0	0
Vanadium	ppm	ASTM D5185(m)		0	0	0
Beryllium	ppm	ASTM D5185(m)		0	0	0
Cadmium	ppm	ASTM D5185(m)		<1	0	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)		48	46	45
Barium	ppm	ASTM D5185(m)		<1	<1	0
Molybdenum	ppm	ASTM D5185(m)		40	43	43
Manganese	ppm	ASTM D5185(m)		<1	0	<1
Magnesium	ppm	ASTM D5185(m)		495	512	516
Calcium	ppm	ASTM D5185(m)		1665	1722	1699
Phosphorus	ppm	ASTM D5185(m)		881	919	964
Zinc	ppm	ASTM D5185(m)	1460	1048	1083	1082
Sulfur	ppm	ASTM D5185(m)		2369	2424	2384
Lithium	ppm	ASTM D5185(m)		<1	<1	<1

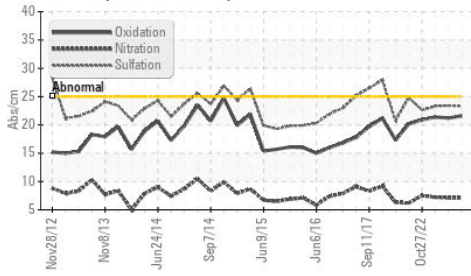
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>25	2	3	4
Sodium	ppm	ASTM D5185(m)		3	3	3
Potassium	ppm	ASTM D5185(m)	>20	<1	0	<1

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	ASTM D7844*		0	0.1	0.1
Nitration	Abs/cm	ASTM D7624*	>20	7.1	7.1	7.2
Sulfation	Abs./1mm	ASTM D7415*	>30	23.3	23.4	23.3

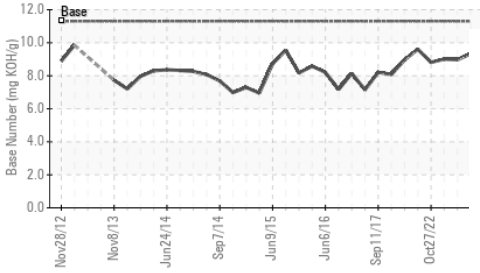


OIL ANALYSIS REPORT

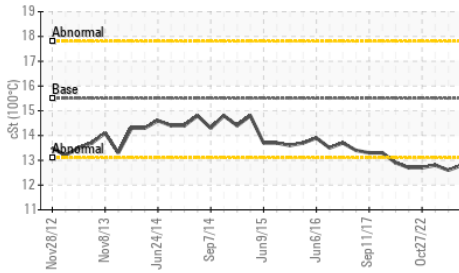
FT-IR (Direct Trend)



Base Number



Viscosity @ 100°C



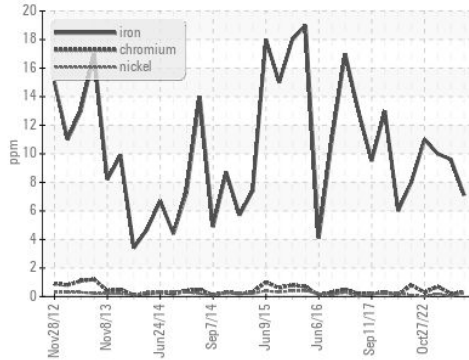
FLUID DEGRADATION	method	limit/base	current	history1	history2	
Oxidation	Abs/.1mm	ASTM D7414*	>25	21.6	21.2	21.4
Base Number (BN)	mg KOH/g	ASTM D2896*	11.3	9.33	8.97	9.01

VISUAL	method	limit/base	current	history1	history2	
Emulsified Water	scalar	Visual*	>0.1	NEG	NEG	NEG
Free Water	scalar	Visual*		NEG	NEG	NEG

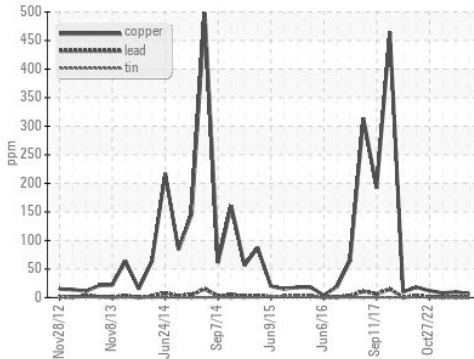
FLUID PROPERTIES	method	limit/base	current	history1	history2	
Visc @ 100°C	cSt	ASTM D7279(m)	15.5	12.8	12.6	12.8

GRAPHS

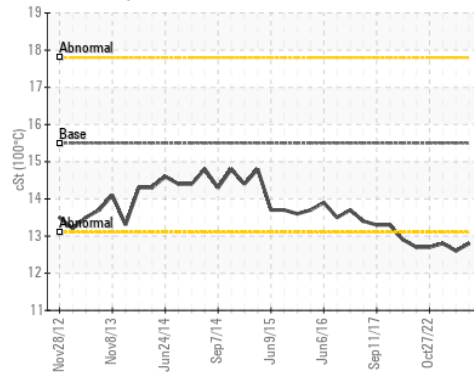
Ferrous Alloys



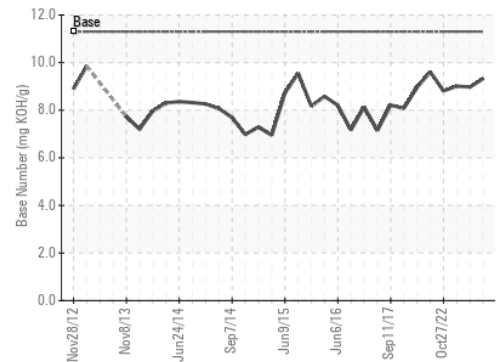
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : WC0829991
Lab Number : 02643062
Unique Number : 5800601
Test Package : MAR 2

CANADIAN COAST GUARD
 CCGS Vladyskov, P.O. Box 5667, 280 Southside Rd.
 St. John's, NL
 CA A1C 5X1
 Contact: Geoff Stewart
 geoffrey.stewart@dfo-mpo.gc.ca
 T: (709)772-4216
 F: (709)772-3652

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.