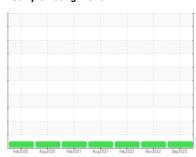


OIL ANALYSIS REPORT

Sample Rating Trend







PORT MAIN ENGINE

Component

Port Main Engine

SHELL ROTELLA T4 15W40 (75 LTR)

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

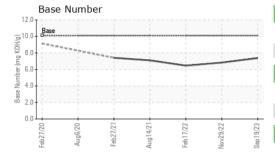
Fluid Condition

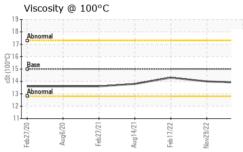
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Feb.2020 Aug2020 Feb.2021 Aug2021 Feb.2022 Nev2022 Sep2023								
SAMPLE INFORM	MATION	method	limit/base	current	history1	history2		
Sample Number		Client Info		WC0732103	WC0732095	WC0616894		
Sample Date		Client Info		19 Sep 2023	29 Nov 2022	17 Feb 2022		
Machine Age	hrs	Client Info		1383	1108	859		
Oil Age	hrs	Client Info		180	251	352		
Oil Changed		Client Info		Not Changd	Not Changd	Changed		
Sample Status				NORMAL	NORMAL	NORMAL		
CONTAMINATION	J	method	limit/base	current	history1	history2		
Fuel		WC Method	>4.0	<1.0	<1.0	<1.0		
Glycol		WC Method		NEG	NEG	NEG		
WEAR METALS		method	limit/base	current	history1	history2		
Iron	ppm	ASTM D5185(m)	>75	5	6	8		
Chromium	ppm	ASTM D5185(m)	>8	0	0	<1		
Nickel	ppm	ASTM D5185(m)	>2	0	<1	<1		
Titanium	ppm	ASTM D5185(m)	>3	0	<1	0		
Silver	ppm	ASTM D5185(m)	>2	<1	<1	0		
Aluminum	ppm	ASTM D5185(m)	>15	1	1	<1		
Lead	ppm	ASTM D5185(m)	>18	<1	<1	<1		
Copper	ppm	ASTM D5185(m)	>80	2	2	4		
Tin	ppm	ASTM D5185(m)	>14	0	<1	<1		
Antimony	ppm	ASTM D5185(m)		0	<1	0		
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		
ADDITIVES Boron	ppm	method ASTM D5185(m)	limit/base	current 113	history1 115	history2 76		
	ppm ppm		limit/base					
Boron	• •	ASTM D5185(m)	limit/base	113	115	76		
Boron Barium	ppm	ASTM D5185(m) ASTM D5185(m)	limit/base	113 <1	115 0	76 0		
Boron Barium Molybdenum	ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	limit/base	113 <1 2	115 0 15	76 0 2		
Boron Barium Molybdenum Manganese	ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	limit/base	113 <1 2 0	115 0 15 <1	76 0 2 <1		
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	limit/base	113 <1 2 0 23	115 0 15 <1 86	76 0 2 <1 23		
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185(m)	limit/base	113 <1 2 0 23 2311	115 0 15 <1 86 2359	76 0 2 <1 23 2317		
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm	ASTM D5185(m)	limit/base	113 <1 2 0 23 2311 1002	115 0 15 <1 86 2359 1055	76 0 2 <1 23 2317 1041		
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm	ASTM D5185(m)	limit/base	113 <1 2 0 23 2311 1002 1219	115 0 15 <1 86 2359 1055 1198	76 0 2 <1 23 2317 1041 1230		
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m)	limit/base	113 <1 2 0 23 2311 1002 1219 2945	115 0 15 <1 86 2359 1055 1198 2961	76 0 2 <1 23 2317 1041 1230 2950		
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m)		113 <1 2 0 23 2311 1002 1219 2945 <1	115 0 15 <1 86 2359 1055 1198 2961 <1	76 0 2 <1 23 2317 1041 1230 2950 <1 history2		
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m)	limit/base	113 <1 2 0 23 2311 1002 1219 2945 <1 current	115 0 15 <1 86 2359 1055 1198 2961 <1	76 0 2 <1 23 2317 1041 1230 2950 <1 history2		
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) method ASTM D5185(m)	limit/base >20	113 <1 2 0 23 2311 1002 1219 2945 <1 current	115 0 15 <1 86 2359 1055 1198 2961 <1 history1 2	76 0 2 <1 23 2317 1041 1230 2950 <1 history2		
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m)	limit/base >20 >75	113 <1 2 0 23 2311 1002 1219 2945 <1 current 6 4	115 0 15 <1 86 2359 1055 1198 2961 <1 history1 2 3	76 0 2 <1 23 2317 1041 1230 2950 <1 history2 2		
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m)	limit/base >20 >75 >20	113 <1 2 0 23 2311 1002 1219 2945 <1 current 6 4 6	115 0 15 <1 86 2359 1055 1198 2961 <1 history1 2 3 7	76 0 2 <1 23 2317 1041 1230 2950 <1 history2 2 2 8		
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) MASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	limit/base >20 >75 >20	113 <1 2 0 23 2311 1002 1219 2945 <1 current 6 4 6	115 0 15 <1 86 2359 1055 1198 2961 <1 history1 2 3 7	76 0 2 <1 23 2317 1041 1230 2950 <1 history2 2 8 history2		



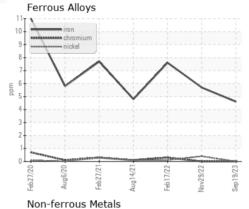
OIL ANALYSIS REPORT

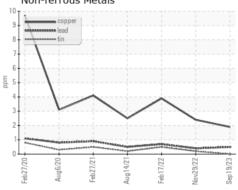


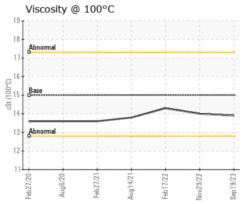


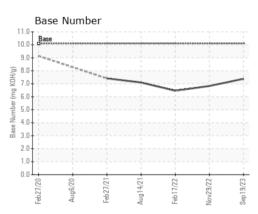
FLUID DEGRADA	TION	method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	ASTM D7414*	>25	18.0	20.2	8.1
Base Number (BN)	mg KOH/g	ASTM D2896*	10.1	7.38	6.83	6.46
VISUAL		method	limit/base	current	history1	history2
Emulsified Water	scalar	Visual*	>0.1	NEG	NEG	NEG
Free Water	scalar	Visual*		NEG	NEG	NEG
FLUID PROPERT	IFS	method	limit/base	current	history1	history2
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GRAPHS











CALA ISO 17025:2017 Accredited Laboratory

Laboratory Sample No. Lab Number Unique Number : 5656101 Test Package : MAR 2

: WC0732103 : 02587035

Validity of results and interpretation are based on the sample and information as supplied.

: WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 Received : 05 Oct 2023 Diagnosed : 10 Oct 2023

Diagnostician : Kevin Marson

CANADIAN COAST GUARD CCGS CONCEPTION BAY, 280 SOUTHSIDE RD, BOX 5667

ST. JOHN'S, NL CA A1C 5X1

Contact: Chief Engineer CCG.ConceptionBayCE-BaiedeConceptionIE.GCC@dfo-mpo.gc.ca

T: 1(709)884-8513

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.

Contact/Location: Chief Engineer - CONCEPTION