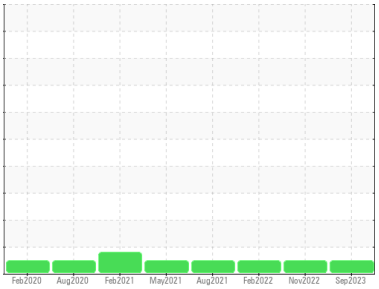
OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL

Machine Id
STBD MAIN ENGINE
Component
Starboard Main Engine
Fluid
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.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**WC0732104**	WC0732106	WC0616888
Sample Date		Client Info		**18 Sep 2023**	29 Nov 2022	17 Feb 2022
Machine Age	hrs	Client Info		**1313**	1110	864
Oil Age	hrs	Client Info		**180**	248	357
Oil Changed		Client Info		**Not Changd**	Not Changd	Changed
Sample Status				**NORMAL**	NORMAL	NORMAL

CONTAMINATION		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**	5	7
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**	0	0
Aluminum	ppm	ASTM D5185(m)	>15	**<1**	1	<1
Lead	ppm	ASTM D5185(m)	>18	**5**	<1	1
Copper	ppm	ASTM D5185(m)	>80	**3**	4	4
Tin	ppm	ASTM D5185(m)	>14	**<1**	<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
Boron	ppm	ASTM D5185(m)		**113**	113	75
Barium	ppm	ASTM D5185(m)		**<1**	0	0
Molybdenum	ppm	ASTM D5185(m)		**2**	10	1
Manganese	ppm	ASTM D5185(m)		**0**	<1	0
Magnesium	ppm	ASTM D5185(m)		**21**	63	17
Calcium	ppm	ASTM D5185(m)		**2289**	2285	2145
Phosphorus	ppm	ASTM D5185(m)		**987**	1032	967
Zinc	ppm	ASTM D5185(m)		**1189**	1163	1173
Sulfur	ppm	ASTM D5185(m)		**2919**	2922	2781
Lithium	ppm	ASTM D5185(m)		**<1**	<1	<1

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>20	**5**	2	2
Sodium	ppm	ASTM D5185(m)	>75	**8**	3	2
Potassium	ppm	ASTM D5185(m)	>20	**6**	7	8

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	ASTM D7844*		**0.2**	0.1	0.1
Nitration	Abs/cm	ASTM D7624*	>20	**8.4**	9.3	10.2
Sulfation	Abs/.1mm	ASTM D7415*	>30	**22.0**	24.1	24.5

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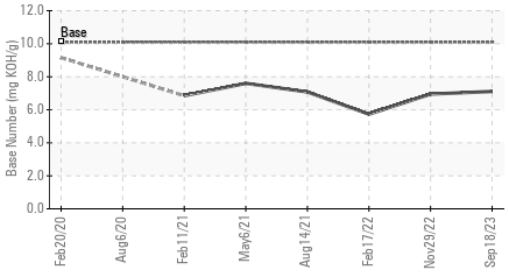
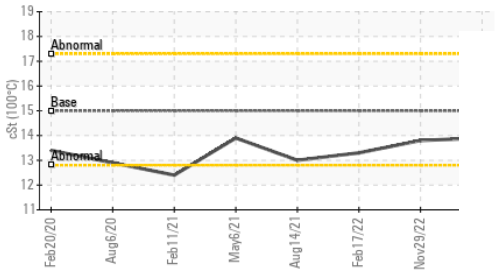


Viscosity @ 100°C



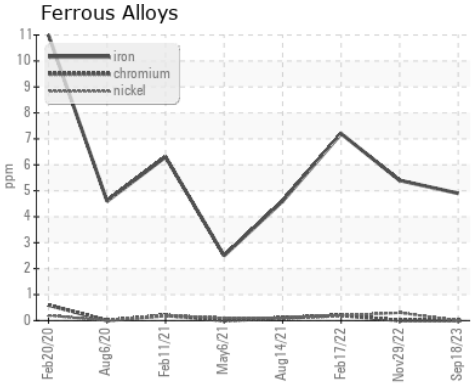
FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	ASTM D7414*	>25	**17.8**	19.7	20.9
Base Number (BN)	mg KOH/g	ASTM D2896*	10.1	**7.11**	6.95	5.73

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

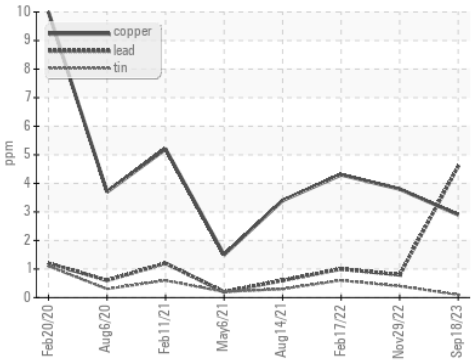
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D7279(m)	15	**13.9**	13.8	13.3

GRAPHS

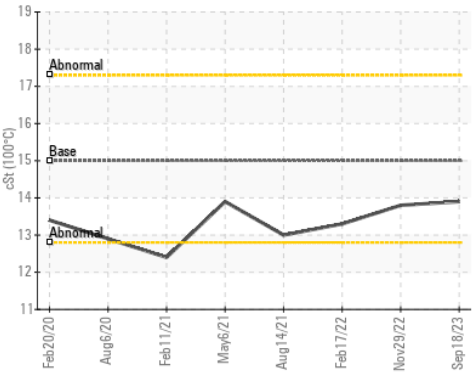
Ferrous Alloys



Non-ferrous Metals



Viscosity @ 100°C



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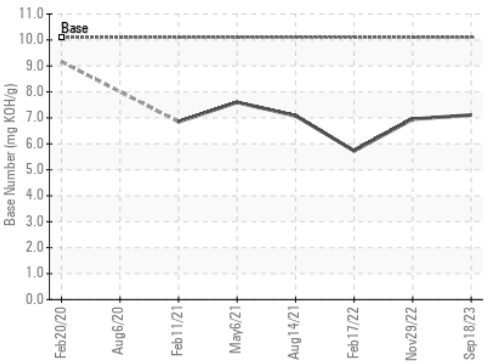

ISO 17025:2017 Accredited Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : WC0732104
Lab Number : 02587036
Unique Number : 5656102
Test Package : MAR 2

Received : 05 Oct 2023
Diagnosed : 10 Oct 2023
Diagnostician : Kevin Marson

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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