



OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL



Area
Power Generation
Machine Id
Main Engine #4 (S/N PAG00442)
Component
4 Main Engine
Fluid
CASTROL CRB Multi 15W-40 CK-4 (800 LTR)

RECOMMENDATION

Resample at the next service interval to monitor. Please contact your representative for information regarding the proper sampling kits for your service. NOTE: We recommend using MAR 3 test kits, this testkit includes Analytical Ferrography which provides a detailed morphological analysis of wear particles present in the fluid. this testkit includes BN to determine the suitability of the oil for continued use.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		WC0850487	WC0850500	WC0754041
Sample Date		Client Info		13 May 2024	17 Dec 2023	15 Oct 2023
Machine Age	hrs	Client Info		48416	47435	46478
Oil Age	hrs	Client Info		0	960	996
Filter Age	hrs	Client Info		0	960	996
Oil Changed		Client Info		Changed	Changed	Changed
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL

WEAR

Component wear rates appear to be normal (unconfirmed).

Iron	ppm	ASTM D5185(m)	>75	5	6	7
Chromium	ppm	ASTM D5185(m)	>8	0	0	0
Nickel	ppm	ASTM D5185(m)	>2	0	0	<1
Titanium	ppm	ASTM D5185(m)	>3	0	0	0
Silver	ppm	ASTM D5185(m)	>2	0	0	<1
Aluminum	ppm	ASTM D5185(m)	>15	1	1	1
Lead	ppm	ASTM D5185(m)	>18	<1	<1	1
Copper	ppm	ASTM D5185(m)	>80	1	1	2
Tin	ppm	ASTM D5185(m)	>14	0	0	0
Vanadium	ppm	ASTM D5185(m)		0	0	0
White Metal	scalar	Visual*	NONE	NONE	NONE	NONE
Yellow Metal	scalar	Visual*	NONE	NONE	NONE	NONE

CONTAMINATION

There is no indication of any contamination in the oil.

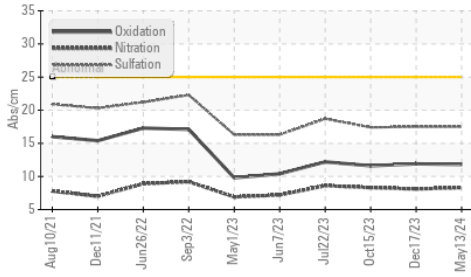
Silicon	ppm	ASTM D5185(m)	>20	2	2	2
Potassium	ppm	ASTM D5185(m)	>20	0	<1	<1
Fuel		WC Method	>4.0	<1.0	<1.0	1.9
Water		WC Method	>0.1	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	ASTM D7844*		0	0.1	0.1
Nitration	Abs/cm	ASTM D7624*	>20	8.3	8.1	8.3
Sulfation	Abs/.1mm	ASTM D7415*	>30	17.5	17.5	17.4
Silt	scalar	Visual*	NONE	NONE	NONE	NONE
Debris	scalar	Visual*	NONE	NONE	VLITE	NONE
Sand/Dirt	scalar	Visual*	NONE	NONE	NONE	NONE
Appearance	scalar	Visual*	NORML	NORML	NORML	NORML
Odor	scalar	Visual*	NORML	NORML	NORML	NORML
Emulsified Water	scalar	Visual*	>0.1	NEG	NEG	NEG

FLUID CONDITION

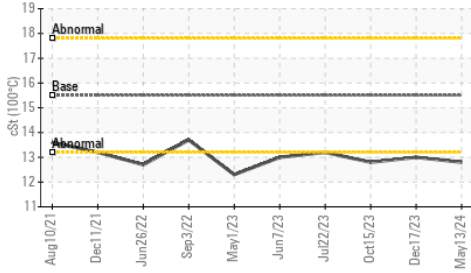
The condition of the oil is acceptable for the time in service (unconfirmed).

Sodium	ppm	ASTM D5185(m)	>75	1	1	1
Boron	ppm	ASTM D5185(m)		56	59	55
Barium	ppm	ASTM D5185(m)		0	0	<1
Molybdenum	ppm	ASTM D5185(m)		35	36	33
Manganese	ppm	ASTM D5185(m)		<1	0	0
Magnesium	ppm	ASTM D5185(m)		16	17	21
Calcium	ppm	ASTM D5185(m)		3579	3653	3593
Phosphorus	ppm	ASTM D5185(m)		830	820	825
Zinc	ppm	ASTM D5185(m)		989	990	968
Sulfur	ppm	ASTM D5185(m)		2668	2610	2675
Oxidation	Abs/.1mm	ASTM D7414*	>25	11.8	11.9	11.6
Visc @ 100°C	cSt	ASTM D7279(m)	15.5	12.8	13.0	12.8

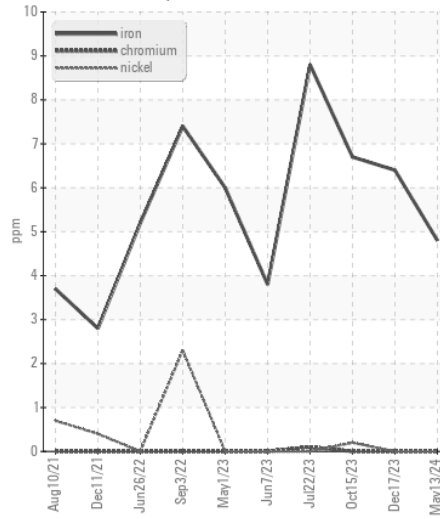
FT-IR (Direct Trend)



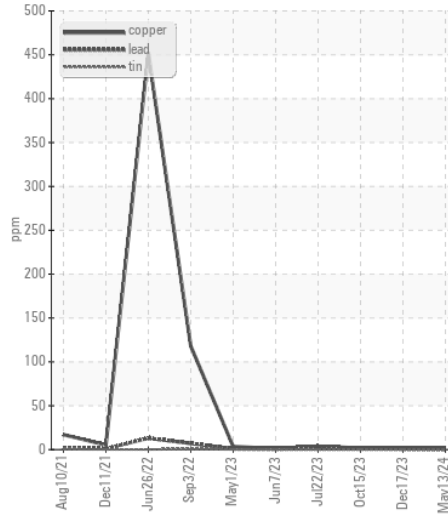
Viscosity @ 100°C



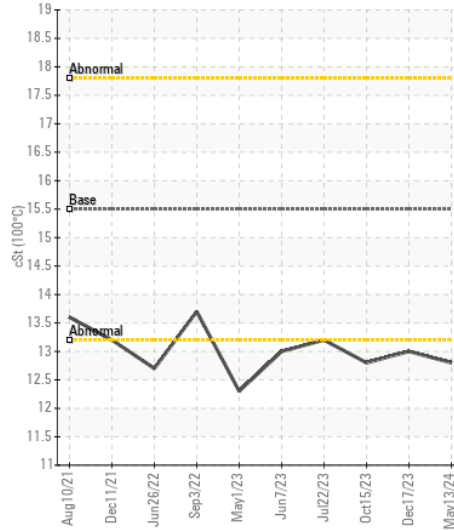
Ferrous Alloys



Non-ferrous Metals



Viscosity @ 100°C



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 **Horizon Maritime Services Ltd. - Horizon Enabler**
Sample No. : WC0850487 **Received** : 07 Jun 2024 87 Water Street, 2nd Floor
Lab Number : 02640401 **Tested** : 07 Jun 2024 St. John's, NL
Unique Number : 5789563 **Diagnosed** : 07 Jun 2024 - Wes Davis CA A1C 1A5
Test Package : MAR 1 **Contact:** Stephen Nowlan
 Cheng.Enabler@northsea.no

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.