



OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Machine Id  
**M/V COHO FERRY**  
 Component  
**Starboard Main Engine**  
 Fluid  
**SHELL CAPRINUS XR 20W40 (200 GAL)**

**RECOMMENDATION**

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>PE0001486</b>	PE0001482	PE0001461
Sample Date		Client Info		<b>13 Jun 2024</b>	16 Mar 2024	16 Dec 2023
Machine Age	hrs	Client Info		<b>56185</b>	55469	55070
Oil Age	hrs	Client Info		<b>4101</b>	3386	2966
Filter Age	hrs	Client Info		<b>967</b>	250	2966
Oil Changed		Client Info		<b>Filtered</b>	Filtered	Oil Added
Filter Changed		Client Info		<b>N/A</b>	Changed	N/A
Sample Status				<b>NORMAL</b>	NORMAL	NORMAL

**WEAR**

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>75	<b>34</b>	35	33
Chromium	ppm	ASTM D5185m	>8	<b>2</b>	2	1
Nickel	ppm	ASTM D5185m	>2	<b>0</b>	1	0
Titanium	ppm	ASTM D5185m	>3	<b>&lt;1</b>	<1	0
Silver	ppm	ASTM D5185m	>2	<b>&lt;1</b>	<1	0
Aluminum	ppm	ASTM D5185m	>15	<b>2</b>	2	1
Lead	ppm	ASTM D5185m	>18	<b>27</b>	25	23
Copper	ppm	ASTM D5185m	>80	<b>55</b>	52	47
Tin	ppm	ASTM D5185m	>14	<b>17</b>	17	15
Vanadium	ppm	ASTM D5185m		<b>&lt;1</b>	<1	<1
White Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE

**CONTAMINATION**

There is no indication of any contamination in the oil.

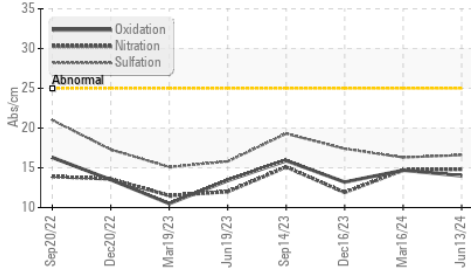
Silicon	ppm	ASTM D5185m	>20	<b>6</b>	8	8
Potassium	ppm	ASTM D5185m	>20	<b>1</b>	3	0
Fuel		WC Method	>4.0	<b>&lt;1.0</b>	<1.0	<1.0
Water		WC Method	>0.1	<b>NEG</b>	NEG	NEG
Glycol		WC Method		<b>NEG</b>	NEG	NEG
Soot %	%	*ASTM D7844	>3	<b>0.3</b>	0.3	0.6
Nitration	Abs/cm	*ASTM D7624	>20	<b>14.8</b>	14.7	11.9
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>16.6</b>	16.3	17.4
Silt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Debris	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Appearance	scalar	*Visual	NORML	<b>NORML</b>	NORML	NORML
Odor	scalar	*Visual	NORML	<b>NORML</b>	NORML	NORML
Emulsified Water	scalar	*Visual	>0.1	<b>NEG</b>	NEG	NEG

**FLUID CONDITION**

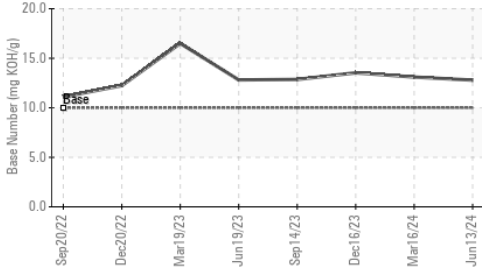
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sodium	ppm	ASTM D5185m	>75	<b>4</b>	0	2
Boron	ppm	ASTM D5185m		<b>2</b>	2	<1
Barium	ppm	ASTM D5185m		<b>0</b>	<1	0
Molybdenum	ppm	ASTM D5185m		<b>&lt;1</b>	1	0
Manganese	ppm	ASTM D5185m		<b>&lt;1</b>	1	<1
Magnesium	ppm	ASTM D5185m		<b>23</b>	20	16
Calcium	ppm	ASTM D5185m		<b>4813</b>	4586	4571
Phosphorus	ppm	ASTM D5185m		<b>21</b>	29	8
Zinc	ppm	ASTM D5185m		<b>27</b>	22	9
Sulfur	ppm	ASTM D5185m		<b>3575</b>	3372	3279
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>14.0</b>	14.7	13.2
Base Number (BN)	mg KOH/g	ASTM D2896	10	<b>12.79</b>	13.10	13.53
Visc @ 100°C	cSt	ASTM D445	14.5	<b>15.3</b>	15.2	15.3

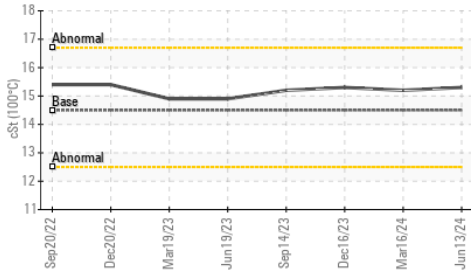
**FT-IR (Direct Trend)**



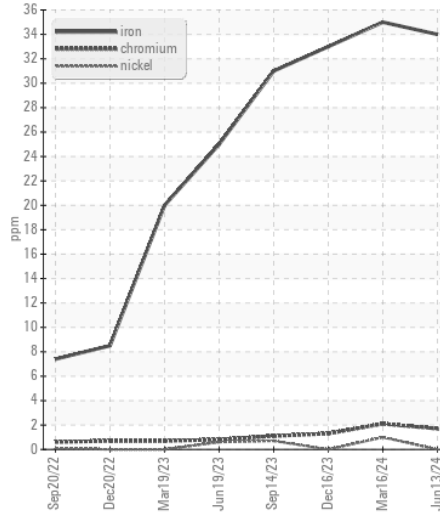
**Base Number**



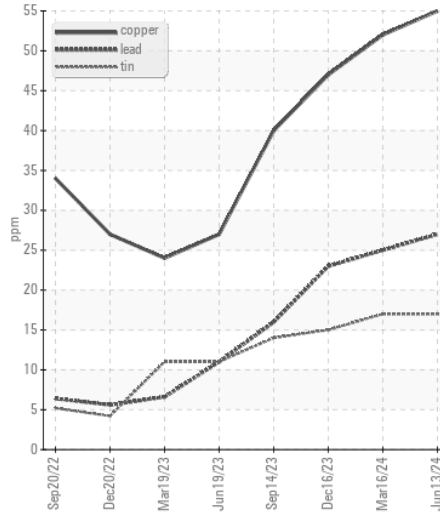
**Viscosity @ 100°C**



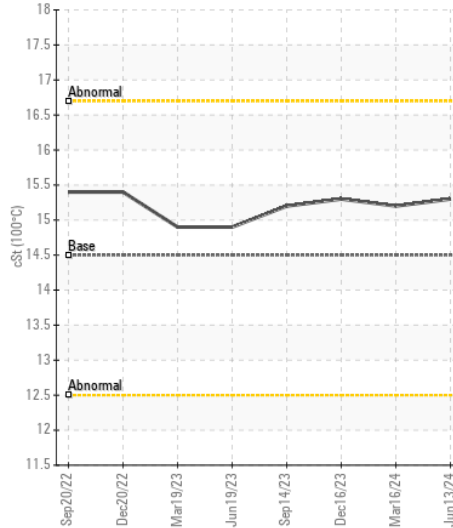
**Ferrous Alloys**



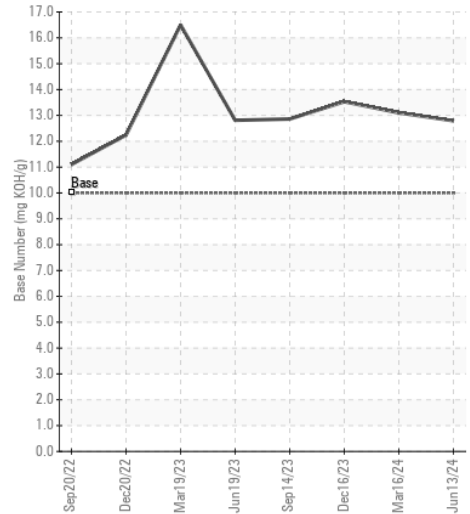
**Non-ferrous Metals**



**Viscosity @ 100°C**



**Base Number**



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : PE0001486 **Received** : 27 Jun 2024  
**Lab Number** : 06222890 **Tested** : 28 Jun 2024  
**Unique Number** : 11101087 **Diagnosed** : 30 Jun 2024 - Don Baldrige  
**Test Package** : PLANT ( Additional Tests: FT-IR, ICP, KV100, SCREEN, TBN )

**BLACK BALL TRANSPORT INC**  
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To discuss this sample report, contact Customer Service at 1-800-237-1369.

\* - Denotes test methods that are outside of the ISO 17025 scope of accreditation.

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)