



WEAR	<b>NORMAL</b>
CONTAMINATION	<b>NORMAL</b>
FLUID CONDITION	<b>NORMAL</b>

Area  
**DALE A HELLER**  
Machine Id  
[DALE A HELLER] 003 624201-3  
Component  
Starboard Main Engine  
Fluid  
CHEVRON DELO 710 LE (--- GAL)

**RECOMMENDATION**

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>MW0064787</b>	MW0061430	MW0061434
Sample Date		Client Info		<b>01 Mar 2024</b>	01 Feb 2024	01 Jan 2024
Machine Age	hrs	Client Info		<b>73249</b>	72562	71823
Oil Age	hrs	Client Info		<b>73249</b>	72562	0
Filter Age	hrs	Client Info		<b>0</b>	0	0
Oil Changed		Client Info		<b>N/A</b>	N/A	N/A
Filter Changed		Client Info		<b>N/A</b>	N/A	N/A
Sample Status				<b>NORMAL</b>	NORMAL	NORMAL

**WEAR**

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>75	<b>13</b>	9	11
Chromium	ppm	ASTM D5185m	>8	<b>&lt;1</b>	<1	<1
Nickel	ppm	ASTM D5185m	>2	<b>0</b>	0	0
Titanium	ppm	ASTM D5185m	>3	<b>0</b>	0	<1
Silver	ppm	ASTM D5185m	>2	<b>0</b>	0	0
Aluminum	ppm	ASTM D5185m	>15	<b>2</b>	2	2
Lead	ppm	ASTM D5185m	>18	<b>4</b>	4	6
Copper	ppm	ASTM D5185m	>80	<b>21</b>	15	16
Tin	ppm	ASTM D5185m	>14	<b>3</b>	3	4
Vanadium	ppm	ASTM D5185m		<b>0</b>	0	<1
White Metal	scalar	*Visual	NONE	<b>LIGHT</b>	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE

**CONTAMINATION**

There is no indication of any contamination in the oil.

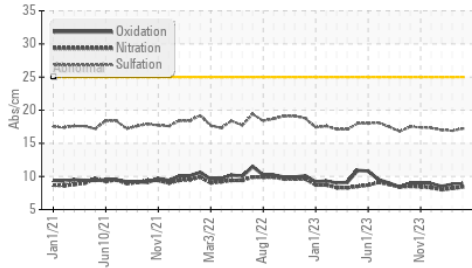
Silicon	ppm	ASTM D5185m	>20	<b>6</b>	3	4
Potassium	ppm	ASTM D5185m	>20	<b>2</b>	0	<1
Fuel		WC Method	>4.0	<b>&lt;1.0</b>	<1.0	<1.0
Water		WC Method	>0.1	<b>NEG</b>	NEG	NEG
Glycol		WC Method		<b>NEG</b>	NEG	NEG
Soot %	%	*ASTM D7844	>3	<b>0.7</b>	0.7	0.7
Nitration	Abs/cm	*ASTM D7624	>20	<b>8.4</b>	8.2	8.0
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>17.2</b>	16.9	17.0
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**

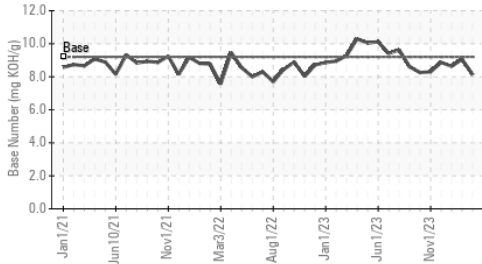
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sodium	ppm	ASTM D5185m	>75	<b>1</b>	0	2
Boron	ppm	ASTM D5185m		<b>40</b>	30	41
Barium	ppm	ASTM D5185m		<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185m		<b>46</b>	42	43
Manganese	ppm	ASTM D5185m		<b>&lt;1</b>	1	1
Magnesium	ppm	ASTM D5185m		<b>11</b>	26	13
Calcium	ppm	ASTM D5185m		<b>3606</b>	3229	3274
Phosphorus	ppm	ASTM D5185m		<b>2</b>	10	0
Zinc	ppm	ASTM D5185m	10	<b>2</b>	13	0
Sulfur	ppm	ASTM D5185m		<b>2461</b>	2118	2238
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>8.9</b>	8.8	8.5
Base Number (BN)	mg KOH/g	ASTM D2896	9.2	<b>8.12</b>	9.06	8.63
Visc @ 100°C	cSt	ASTM D445	15.5	<b>14.8</b>	14.8	14.8

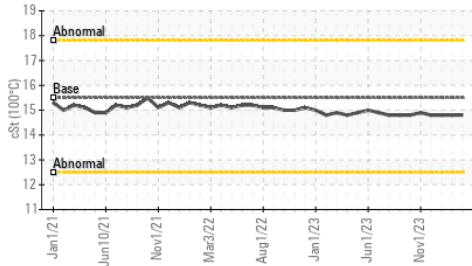
**FT-IR (Direct Trend)**



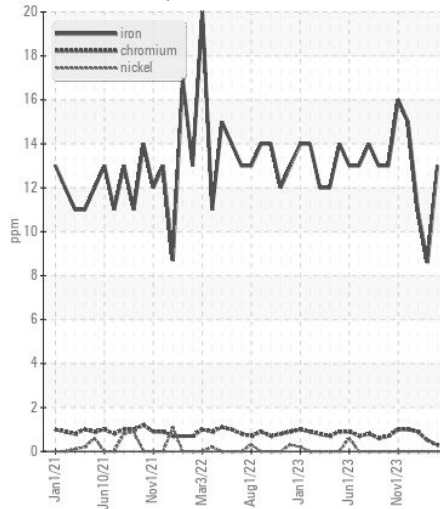
**Base Number**



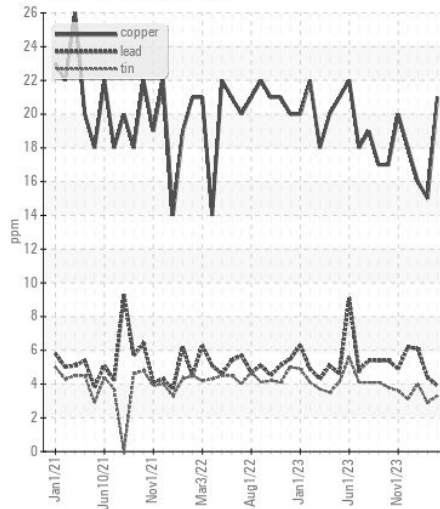
**Viscosity @ 100°C**



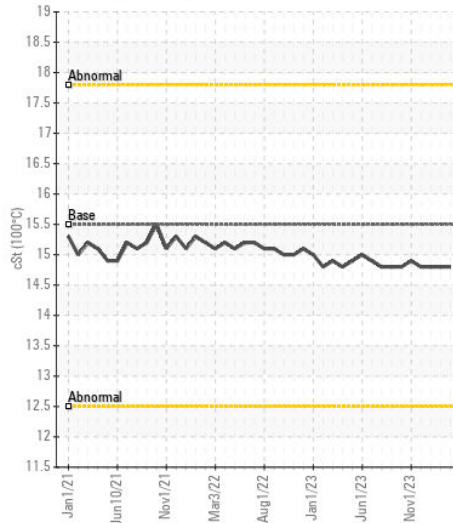
**Ferrous Alloys**



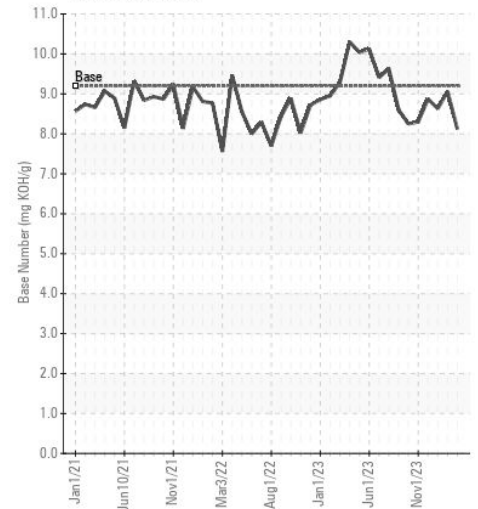
**Non-ferrous Metals**



**Viscosity @ 100°C**



**Base Number**



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513

**Sample No.** : MW0064787

**Lab Number** : 06151306

**Unique Number** : 10981384

**Test Package** : MAR 2

**Received** : 16 Apr 2024

**Tested** : 18 Apr 2024

**Diagnosed** : 18 Apr 2024 - Wes Davis

**INGRAM BARGE**

900 S 3RD ST

PADUCAH, KY

US 42003

Contact: JUSTIN WHEELER

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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)