



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

Machine Id  
**WMC**  
Component  
**Starboard Main Engine**  
Fluid  
**CHEVRON DELO 400 XLE 15W40 (--- GAL)**

**RECOMMENDATION**

No corrective action is recommended at this time. We recommend an early resample to monitor this condition.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>MW05745123</b>	MW05685043	MW05663162
Sample Date		Client Info		<b>19 Jan 2023</b>	03 Nov 2022	10 Oct 2022
Machine Age	hrs	Client Info		<b>20316</b>	19699	19142
Oil Age	hrs	Client Info		<b>617</b>	557	466
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>ABNORMAL</b>	MARGINAL	ABNORMAL

**WEAR**

The lead level is abnormal. All other component wear rates are normal.

Iron	ppm	ASTM D5185m	>75	<b>4</b>	6	9
Chromium	ppm	ASTM D5185m	>8	<b>&lt;1</b>	<1	2
Nickel	ppm	ASTM D5185m	>2	<b>0</b>	0	0
Titanium	ppm	ASTM D5185m	>3	<b>&lt;1</b>	1	2
Silver	ppm	ASTM D5185m	>2	<b>0</b>	0	<1
Aluminum	ppm	ASTM D5185m	>15	<b>1</b>	2	4
Lead	ppm	ASTM D5185m	>18	<b>▲ 20</b>	▲ 25	▲ 54
Copper	ppm	ASTM D5185m	>80	<b>1</b>	<1	2
Tin	ppm	ASTM D5185m	>14	<b>0</b>	<1	<1
Vanadium	ppm	ASTM D5185m		<b>0</b>	0	<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.

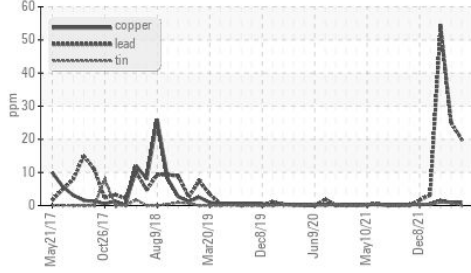
Silicon	ppm	ASTM D5185m	>20	<b>4</b>	5	4
Potassium	ppm	ASTM D5185m	>20	<b>0</b>	1	5
Fuel		WC Method	>4.0	<b>&lt;1.0</b>	<1.0	<1.0
Water		WC Method	>0.1	<b>NEG</b>	NEG	NEG
Glycol		WC Method		<b>NEG</b>	NEG	NEG
Soot %	%	*ASTM D7844		<b>0.1</b>	0.1	0.2
Nitration	Abs/cm	*ASTM D7624	>20	<b>8.9</b>	8.9	10.7
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>23.1</b>	24.0	25.1
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**

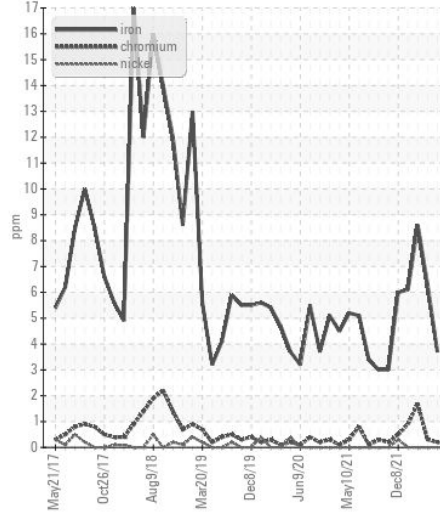
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sodium	ppm	ASTM D5185m	>75	<b>1</b>	4	8
Boron	ppm	ASTM D5185m		<b>330</b>	275	189
Barium	ppm	ASTM D5185m		<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185m		<b>92</b>	97	100
Manganese	ppm	ASTM D5185m		<b>&lt;1</b>	<1	1
Magnesium	ppm	ASTM D5185m		<b>466</b>	557	618
Calcium	ppm	ASTM D5185m		<b>1426</b>	1662	1485
Phosphorus	ppm	ASTM D5185m	760	<b>747</b>	793	786
Zinc	ppm	ASTM D5185m	830	<b>879</b>	951	987
Sulfur	ppm	ASTM D5185m	2770	<b>2898</b>	3340	3133
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>19.8</b>	18.9	22.6
Base Number (BN)	mg KOH/g	ASTM D2896	10.7	<b>7.3</b>	7.8	7.3
Visc @ 100°C	cSt	ASTM D445	14.9	<b>13.4</b>	13.2	12.7

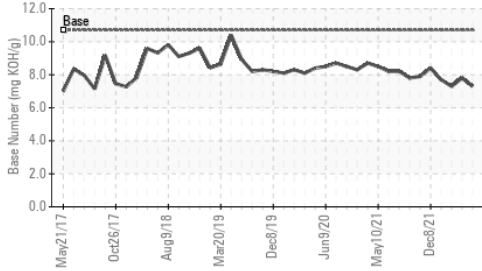
▲ Non-ferrous Metals



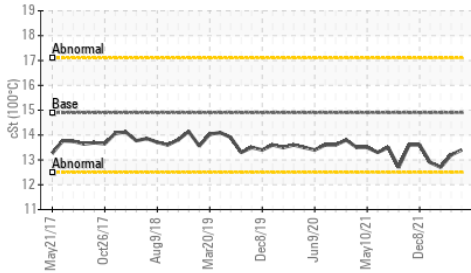
Ferrous Alloys



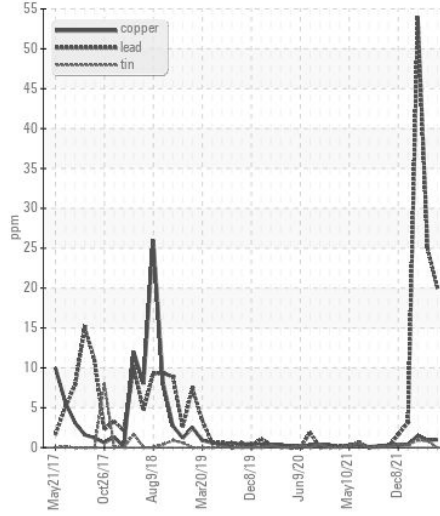
Base Number



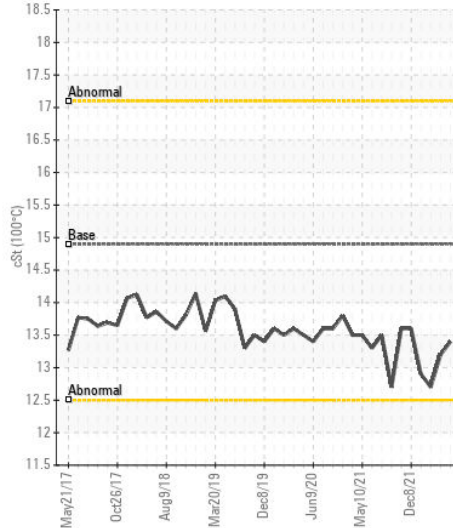
Viscosity @ 100°C



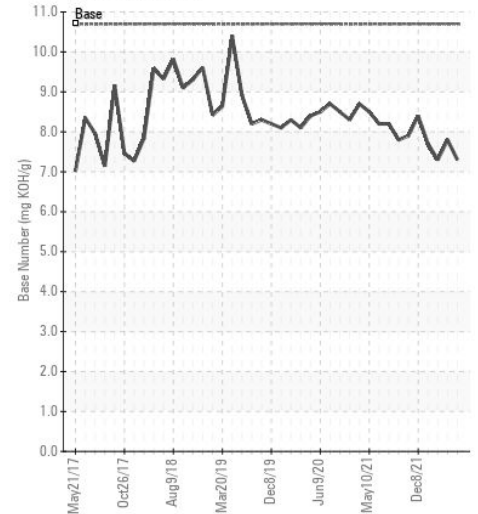
▲ Non-ferrous Metals



Viscosity @ 100°C



Base Number



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : MW05745123 **Received** : 20 Jan 2023  
**Lab Number** : 05745123 **Tested** : 23 Jan 2023  
**Unique Number** : 10299722 **Diagnosed** : 24 Jan 2023 - Angela Borella  
**Test Package** : MAR 2

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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)