



WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Area
RICK HARNACK
Machine Id
[RICK HARNACK] 003 685578-3
Component
Starboard Main Engine
Fluid
CHEVRON DELO 400 XLE 15W40 (220 GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		MW0068902	MW06202158	MW06176276
Sample Date		Client Info		01 Jul 2024	01 Jun 2024	01 May 2024
Machine Age	hrs	Client Info		33887	33195	32468
Oil Age	hrs	Client Info		27	727	1522
Filter Age	hrs	Client Info		27	0	0
Oil Changed		Client Info		Changed	N/A	N/A
Filter Changed		Client Info		Changed	N/A	N/A
Sample Status				NORMAL	NORMAL	NORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>75	3	4	19
Chromium	ppm	ASTM D5185m	>8	<1	0	<1
Nickel	ppm	ASTM D5185m	>2	0	0	0
Titanium	ppm	ASTM D5185m	>3	0	0	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>15	3	2	3
Lead	ppm	ASTM D5185m	>18	0	0	3
Copper	ppm	ASTM D5185m	>80	<1	<1	1
Tin	ppm	ASTM D5185m	>14	0	0	0
Vanadium	ppm	ASTM D5185m		0	<1	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.

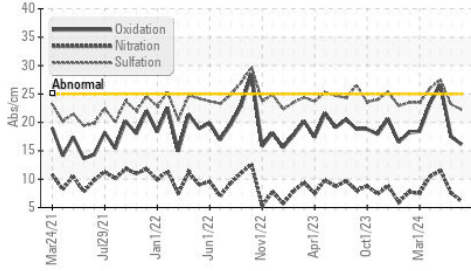
Silicon	ppm	ASTM D5185m	>20	5	4	6
Potassium	ppm	ASTM D5185m	>20	1	<1	<1
Fuel		WC Method	>4.0	<1.0	<1.0	<1.0
Water		WC Method	>0.1	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844		0.1	0.2	0.4
Nitration	Abs/cm	*ASTM D7624	>20	6.1	7.6	11.5
Sulfation	Abs/.1mm	*ASTM D7415	>30	22.2	23.2	27.5
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	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

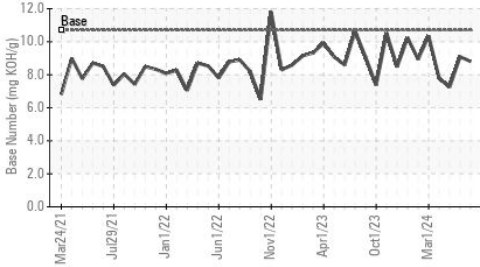
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sodium	ppm	ASTM D5185m	>75	1	0	2
Boron	ppm	ASTM D5185m		414	375	319
Barium	ppm	ASTM D5185m		0	0	<1
Molybdenum	ppm	ASTM D5185m		106	109	139
Manganese	ppm	ASTM D5185m		<1	<1	2
Magnesium	ppm	ASTM D5185m		509	570	731
Calcium	ppm	ASTM D5185m		1389	1637	1768
Phosphorus	ppm	ASTM D5185m	760	814	928	746
Zinc	ppm	ASTM D5185m	830	1020	1125	922
Sulfur	ppm	ASTM D5185m	2770	2583	3604	2950
Oxidation	Abs/.1mm	*ASTM D7414	>25	16.1	17.5	26.6
Base Number (BN)	mg KOH/g	ASTM D2896	10.7	8.80	9.09	7.25
Visc @ 100°C	cSt	ASTM D445	14.9	13.9	13.4	13.6

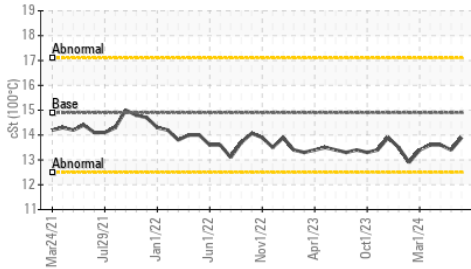
FT-IR (Direct Trend)



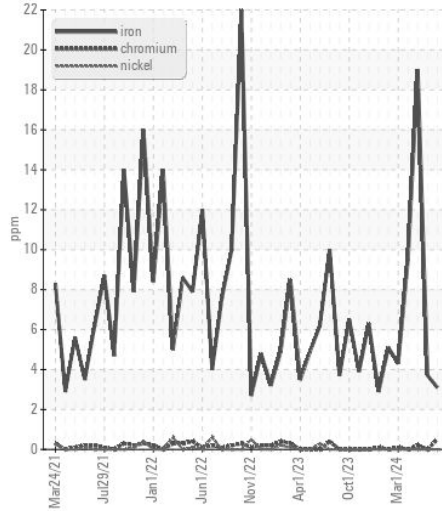
Base Number



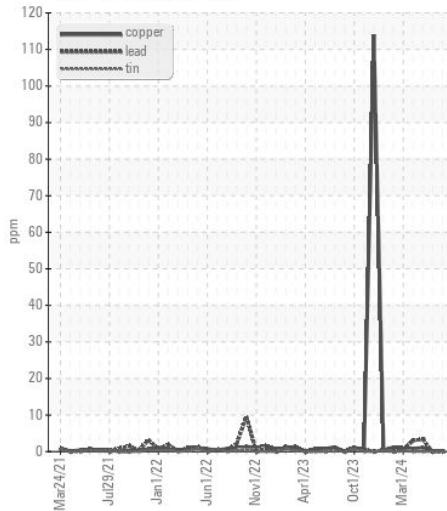
Viscosity @ 100°C



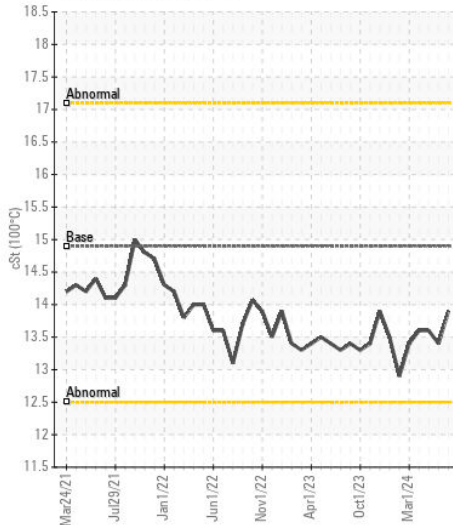
Ferrous Alloys



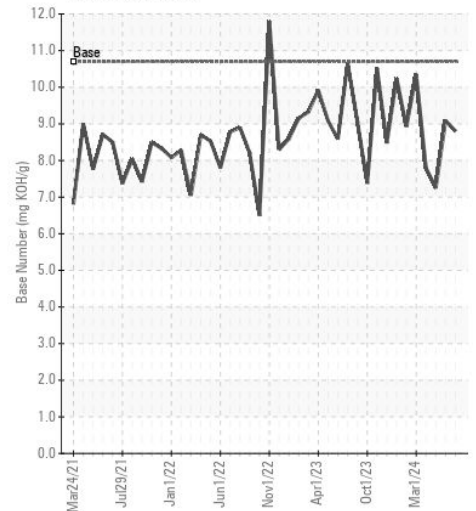
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Certificate L2367

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

Sample No. : MW0068902

Lab Number : 06237082

Unique Number : 11125916

Test Package : MAR 2

Received : 15 Jul 2024

Tested : 17 Jul 2024

Diagnosed : 17 Jul 2024 - Wes Davis

INGRAM BARGE

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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)