



WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Area
DENNIS BOTTORFF
Machine Id
[DENNIS BOTTORFF] 003 569953-3
Component
Starboard Main Engine
Fluid
CHEVRON DELO 710 LS (--- GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		MW0065682	MW0065678	MW0064289
Sample Date		Client Info		02 May 2024	01 Apr 2024	01 Mar 2024
Machine Age	hrs	Client Info		43510	42926	42182
Oil Age	hrs	Client Info		43510	42926	42182
Filter Age	hrs	Client Info		0	84	0
Oil Changed		Client Info		Not Changd	Not Changd	N/A
Filter Changed		Client Info		N/A	Changed	N/A
Sample Status				NORMAL	NORMAL	NORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>75	34	31	32
Chromium	ppm	ASTM D5185m	>8	2	1	1
Nickel	ppm	ASTM D5185m	>2	<1	0	0
Titanium	ppm	ASTM D5185m	>3	<1	0	0
Silver	ppm	ASTM D5185m	>2	<1	0	0
Aluminum	ppm	ASTM D5185m	>15	3	2	2
Lead	ppm	ASTM D5185m	>18	6	4	5
Copper	ppm	ASTM D5185m	>80	35	29	28
Tin	ppm	ASTM D5185m	>14	6	4	5
Vanadium	ppm	ASTM D5185m		<1	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.

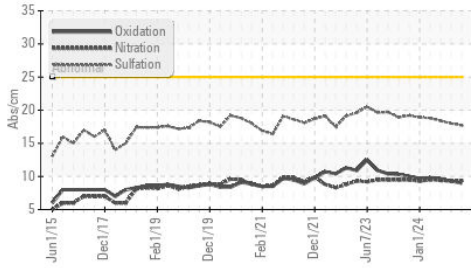
Silicon	ppm	ASTM D5185m	>20	5	4	4
Potassium	ppm	ASTM D5185m	>20	3	2	<1
Fuel		WC Method	>4.0	<1.0	<1.0	<1.0
Water		WC Method	>0.1	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>3	1.3	1.3	1.4
Nitration	Abs/cm	*ASTM D7624	>20	9.4	9.3	9.4
Sulfation	Abs/.1mm	*ASTM D7415	>30	17.7	18.0	18.4
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

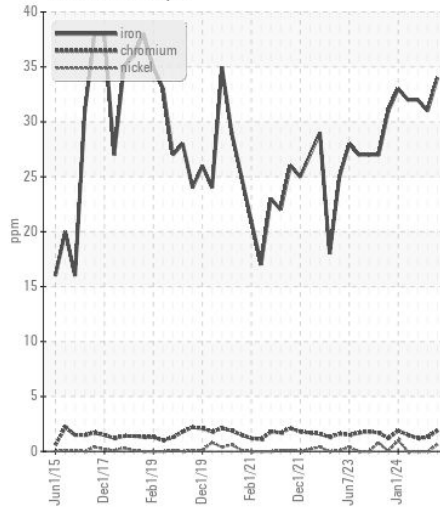
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sodium	ppm	ASTM D5185m	>75	2	3	3
Boron	ppm	ASTM D5185m		47	52	51
Barium	ppm	ASTM D5185m		1	0	0
Molybdenum	ppm	ASTM D5185m		54	52	52
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m		42	52	58
Calcium	ppm	ASTM D5185m		3549	3358	3179
Phosphorus	ppm	ASTM D5185m		55	44	50
Zinc	ppm	ASTM D5185m		48	53	57
Sulfur	ppm	ASTM D5185m		2399	2654	2050
Oxidation	Abs/.1mm	*ASTM D7414	>25	9.0	9.3	9.6
Base Number (BN)	mg KOH/g	ASTM D2896	10.5	9.24	9.36	9.77
Visc @ 100°C	cSt	ASTM D445	15.5	14.6	14.7	14.8

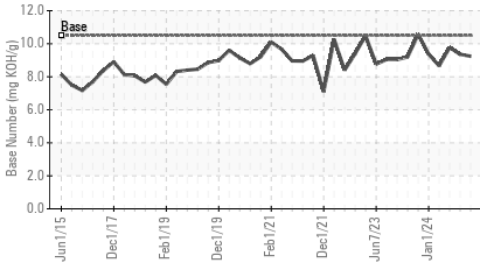
FT-IR (Direct Trend)



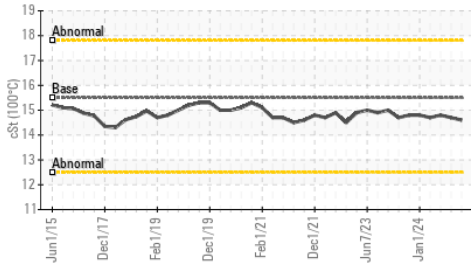
Ferrous Alloys



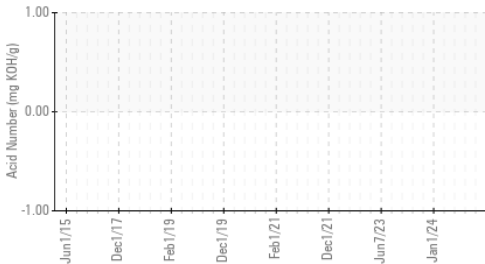
Base Number



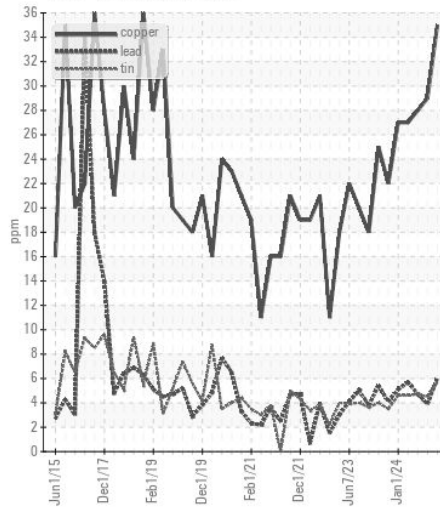
Viscosity @ 100°C



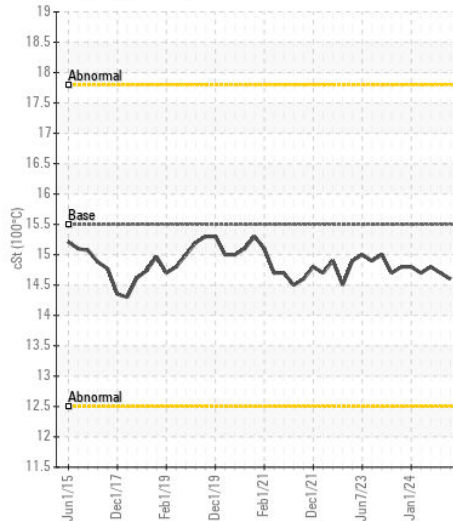
Acid Number



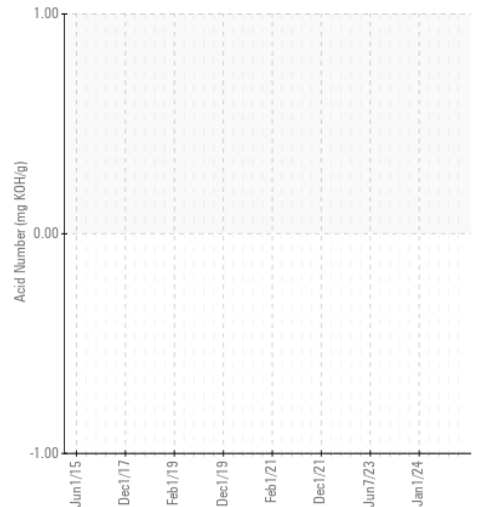
Non-ferrous Metals



Viscosity @ 100°C



Acid Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : MW0065682 **Received** : 21 Jun 2024
Lab Number : 06217418 **Tested** : 25 Jun 2024
Unique Number : 11090282 **Diagnosed** : 25 Jun 2024 - Sean Felton
Test Package : MAR 2 (Additional Tests: TAN Man)

INGRAM BARGE
 900 S 3RD ST
 PADUCAH, KY
 US 42003

Contact: ANTHONY VAN CURA
 anthony.vancura@ingrambarga.com

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)

T: (270)415-4467
 F: (615)695-3697