



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

RECOMMENDATION

No corrective action is recommended at this time. Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		MW05934671	MW05862881	MW05843080
Sample Date		Client Info		24 Aug 2023	01 Jun 2023	09 May 2023
Machine Age	hrs	Client Info		59195	58964	58674
Oil Age	hrs	Client Info		231	290	854
Filter Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		N/A	N/A	N/A
Filter Changed		Client Info		N/A	N/A	N/A
Sample Status				MARGINAL	NORMAL	NORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>75	1	0	3
Chromium	ppm	ASTM D5185m	>8	0	0	<1
Nickel	ppm	ASTM D5185m	>2	0	0	0
Titanium	ppm	ASTM D5185m	>3	0	0	<1
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>15	0	0	1
Lead	ppm	ASTM D5185m	>18	0	0	<1
Copper	ppm	ASTM D5185m	>80	<1	<1	<1
Tin	ppm	ASTM D5185m	>14	0	0	0
Vanadium	ppm	ASTM D5185m		<1	0	0
White Metal	scalar	*Visual	NONE	LIGHT	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

Fuel content negligible. There is no indication of any contamination in the oil.

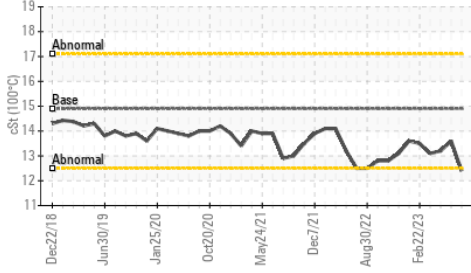
Silicon	ppm	ASTM D5185m	>20	3	4	4
Potassium	ppm	ASTM D5185m	>20	<1	2	2
Fuel	%	ASTM D3524	>4.0	0.7	<1.0	<1.0
Water		WC Method	>0.1	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844		0.1	0.1	0.1
Nitration	Abs/cm	*ASTM D7624	>20	6.1	5.2	6.6
Sulfation	Abs/.1mm	*ASTM D7415	>30	16.7	20.6	22.7
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

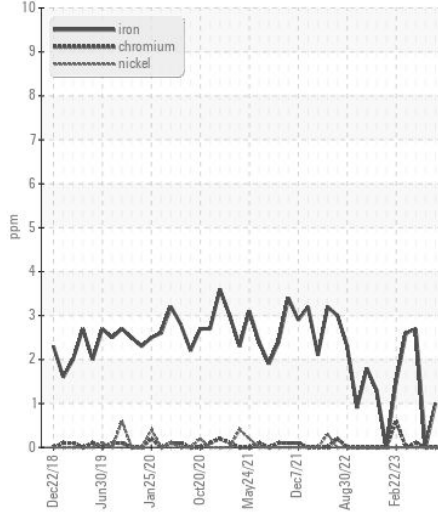
The oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil.

Sodium	ppm	ASTM D5185m	>75	2	<1	0
Boron	ppm	ASTM D5185m		251	408	312
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m		52	88	91
Manganese	ppm	ASTM D5185m		0	<1	<1
Magnesium	ppm	ASTM D5185m		298	437	482
Calcium	ppm	ASTM D5185m		1933	1473	1385
Phosphorus	ppm	ASTM D5185m	760	926	928	760
Zinc	ppm	ASTM D5185m	830	1118	1129	926
Sulfur	ppm	ASTM D5185m	2770	4023	3690	2925
Oxidation	Abs/.1mm	*ASTM D7414	>25	10.8	14.3	17.6
Base Number (BN)	mg KOH/g	ASTM D2896	10.7	7.2	8.4	7.6
Visc @ 100°C	cSt	ASTM D445	14.9	▲ 12.4	13.6	13.2

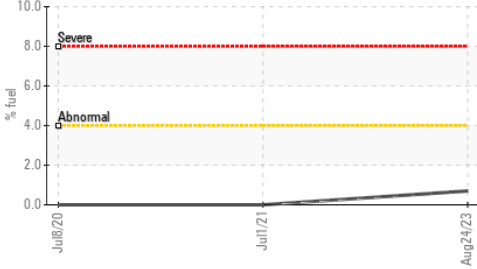
▲ Viscosity @ 100°C



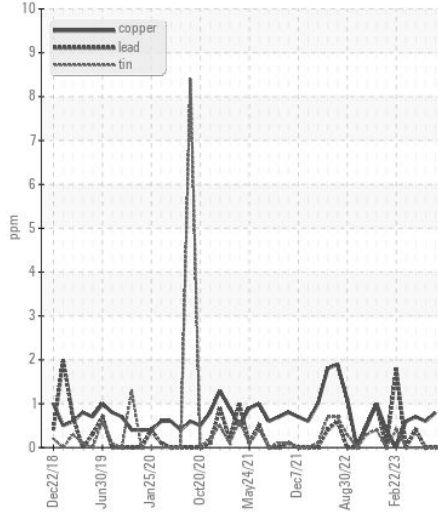
Ferrous Alloys



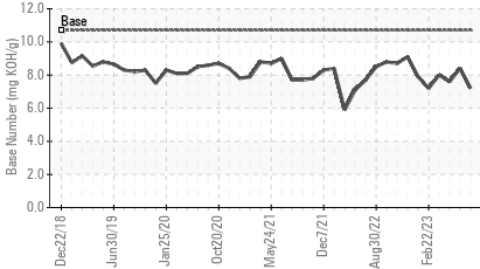
Fuel Dilution



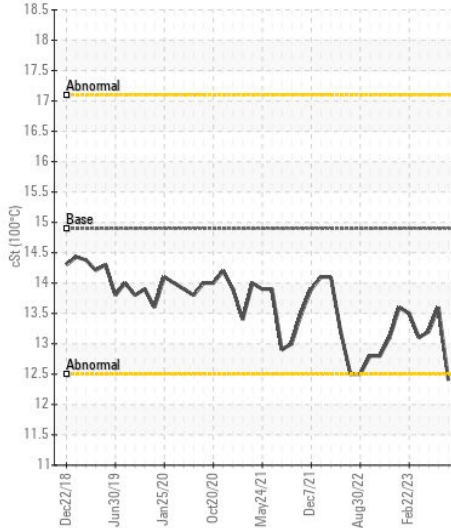
Non-ferrous Metals



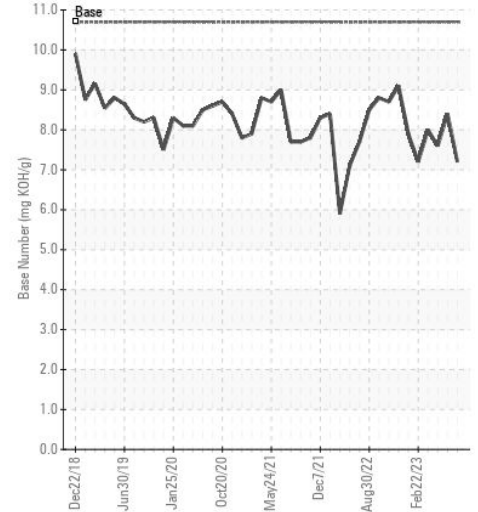
Base Number



▲ Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : MW05934671 **Received** : 25 Aug 2023
Lab Number : 05934671 **Tested** : 29 Aug 2023
Unique Number : 10619942 **Diagnosed** : 29 Aug 2023 - Jonathan Hester
Test Package : MAR 2 (Additional Tests: FuelDilution, PercentFuel)

ILLINOIS MARINE TOWING
 PO BOX 391
 LEMONT, IL
 US 60439
 Contact: RHETT DANIEL
 rdaniel@imtowing.com
 T: (630)280-4926
 F: (630)739-2041

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)