



WEAR	ABNORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Area
LES GRIMM
Machine Id
[LES GRIMM] 003 569145-3
Component
Starboard Main Engine
Fluid
CHEVRON DELO 710 LE (--- GAL)

RECOMMENDATION

No corrective action is recommended at this time. The filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		MW0059878	MW0059874	MW0059948
Sample Date		Client Info		01 Jan 2024	01 Dec 2023	01 Nov 2023
Machine Age	hrs	Client Info		33274	32537	32019
Oil Age	hrs	Client Info		33274	32537	32019
Filter Age	hrs	Client Info		1115	367	1251
Oil Changed		Client Info		Not Chngd	Not Chngd	Not Chngd
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				ABNORMAL	ABNORMAL	NORMAL

WEAR

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

Iron	ppm	ASTM D5185m	>75	9	8	7
Chromium	ppm	ASTM D5185m	>8	1	<1	1
Nickel	ppm	ASTM D5185m	>2	0	<1	0
Titanium	ppm	ASTM D5185m	>3	0	<1	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>15	2	2	2
Lead	ppm	ASTM D5185m	>18	▲ 18	▲ 19	6
Copper	ppm	ASTM D5185m	>80	32	36	12
Tin	ppm	ASTM D5185m	>14	5	4	5
Vanadium	ppm	ASTM D5185m		0	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.

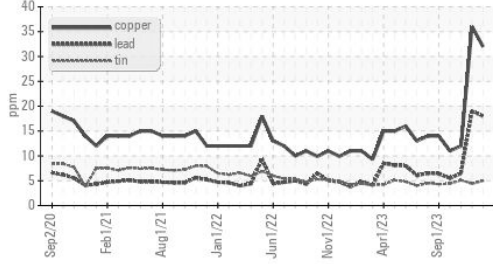
Silicon	ppm	ASTM D5185m	>20	6	6	4
Potassium	ppm	ASTM D5185m	>20	<1	3	0
Fuel		WC Method	>4.0	<1.0	<1.0	<1.0
Water		WC Method	>0.1	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844		0.8	0.8	0.9
Nitration	Abs/cm	*ASTM D7624	>20	8.5	8.8	8.7
Sulfation	Abs/.1mm	*ASTM D7415	>30	17.1	17.4	16.4
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

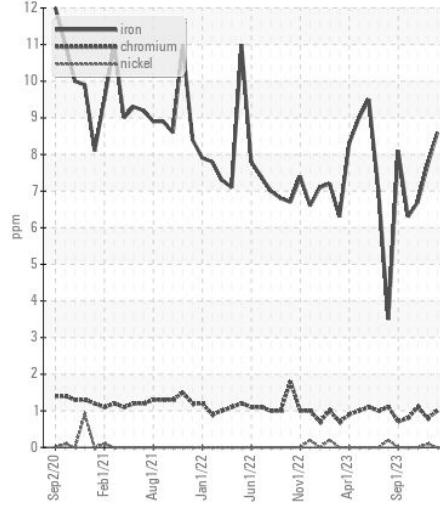
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is acceptable for the time in service.

Sodium	ppm	ASTM D5185m	>75	41	52	4
Boron	ppm	ASTM D5185m		27	30	30
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m		44	42	44
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m		15	16	14
Calcium	ppm	ASTM D5185m		3219	3158	3366
Phosphorus	ppm	ASTM D5185m		6	4	6
Zinc	ppm	ASTM D5185m	10	12	5	<1
Sulfur	ppm	ASTM D5185m		2279	2155	2305
Oxidation	Abs/.1mm	*ASTM D7414	>25	8.1	8.3	8.5
Base Number (BN)	mg KOH/g	ASTM D2896	9.2	8.83	8.29	9.41
Visc @ 100°C	cSt	ASTM D445	15.5	13.2	13.3	13.4

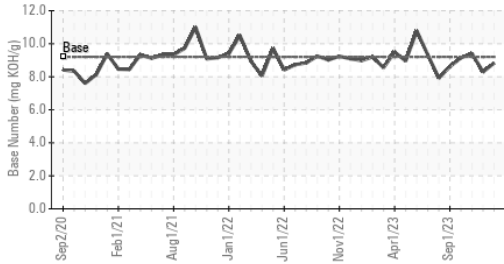
▲ Non-ferrous Metals



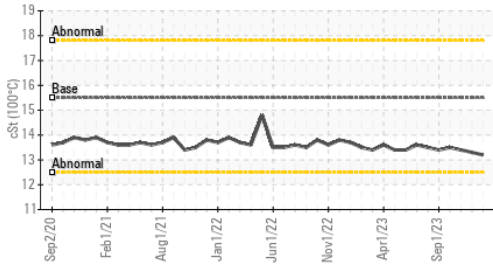
Ferrous Alloys



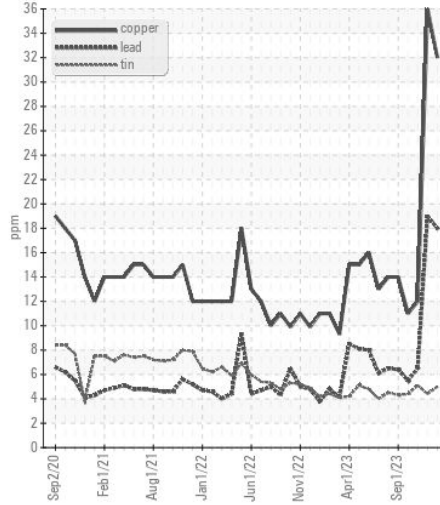
Base Number



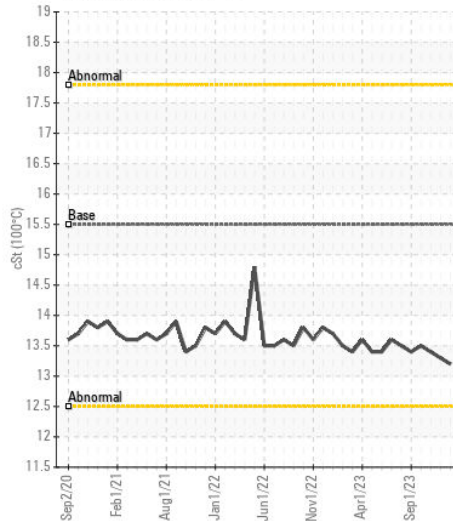
Viscosity @ 100°C



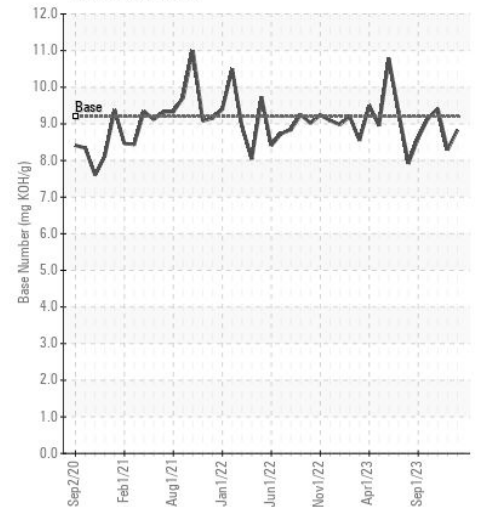
▲ Non-ferrous Metals



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : MW0059878 **Received** : 08 Jan 2024
Lab Number : 06054109 **Diagnosed** : 09 Jan 2024
Unique Number : 10820058 **Diagnostician** : Sean Felton
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)