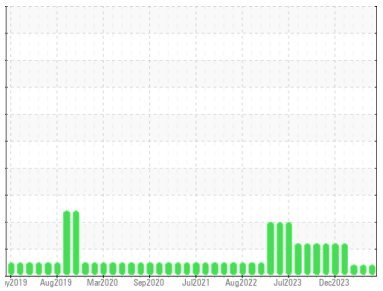
OIL ANALYSIS REPORT

Sample Rating Trend



VISCOSITY

Area
NEIL N DIEHL
Machine Id
[NEIL N DIEHL] 008 639030-8
Component
Starboard Genset
Fluid
CHEVRON DELO 400 XLE 15W40 (--- GAL)

DIAGNOSIS

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

Wear
All component wear rates are normal.

Contamination
There is no indication of any contamination in the oil.

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

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**MW0065827**	MW06179588	MW0065829
Sample Date		Client Info		**21 Apr 2024**	22 Mar 2024	16 Feb 2024
Machine Age	hrs	Client Info		**5464**	5126	4711
Oil Age	hrs	Client Info		**355**	45	333
Oil Changed		Client Info		**Changed**	N/A	Changed
Sample Status				**ATTENTION**	ATTENTION	ATTENTION

CONTAMINATION		method	limit/base	current	history1	history2
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

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>50	**6**	5	6
Chromium	ppm	ASTM D5185m	>4	**<1**	0	<1
Nickel	ppm	ASTM D5185m	>2	**<1**	0	<1
Titanium	ppm	ASTM D5185m		**<1**	0	<1
Silver	ppm	ASTM D5185m	>5	**0**	0	0
Aluminum	ppm	ASTM D5185m	>12	**4**	2	3
Lead	ppm	ASTM D5185m	>17	**0**	<1	0
Copper	ppm	ASTM D5185m	>70	**22**	31	30
Tin	ppm	ASTM D5185m	>15	**<1**	<1	<1
Vanadium	ppm	ASTM D5185m		**<1**	0	0
Cadmium	ppm	ASTM D5185m		**<1**	0	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		**340**	363	363
Barium	ppm	ASTM D5185m		**0**	0	0
Molybdenum	ppm	ASTM D5185m		**122**	131	121
Manganese	ppm	ASTM D5185m		**1**	2	2
Magnesium	ppm	ASTM D5185m		**591**	665	629
Calcium	ppm	ASTM D5185m		**1518**	1725	1486
Phosphorus	ppm	ASTM D5185m	760	**693**	732	690
Zinc	ppm	ASTM D5185m	830	**813**	828	814
Sulfur	ppm	ASTM D5185m	2770	**2708**	2988	2767

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>25	**6**	5	6
Sodium	ppm	ASTM D5185m		**<1**	<1	<1
Potassium	ppm	ASTM D5185m	>20	**2**	0	1

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844		**0.1**	0.1	0.1
Nitration	Abs/cm	*ASTM D7624	>20	**7.0**	7.2	6.7
Sulfation	Abs/.1mm	*ASTM D7415	>30	**22.3**	22.5	22.8

FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	**16.3**	16.6	16.6
Base Number (BN)	mg KOH/g	ASTM D2896	10.7	**8.5**	8.8	8.6

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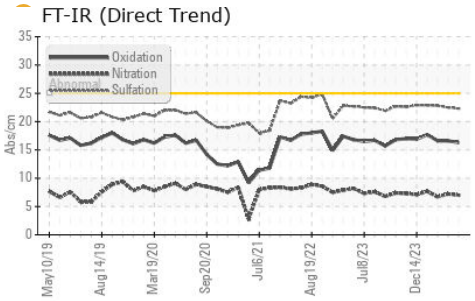
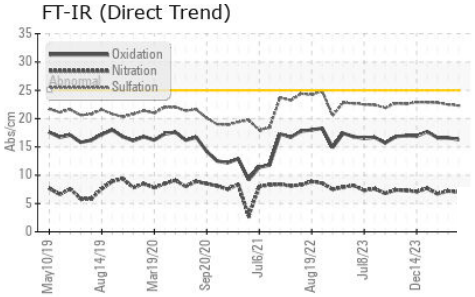
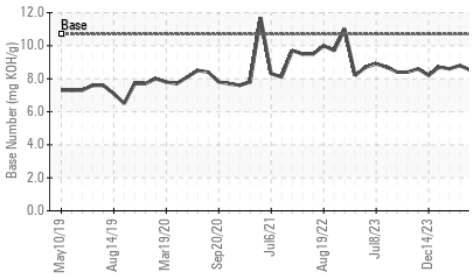
FT-IR (Direct Trend)



FT-IR (Direct Trend)



Base Number

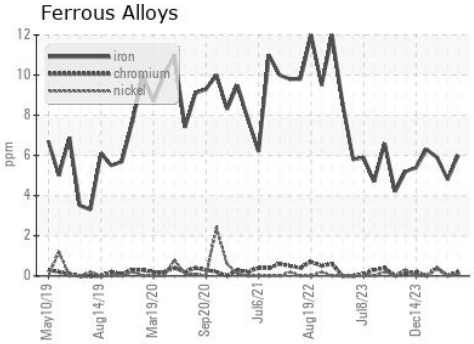


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	NONE	NONE
Sand/Dirt	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
Free Water	scalar	*Visual		**NEG**	NEG	NEG

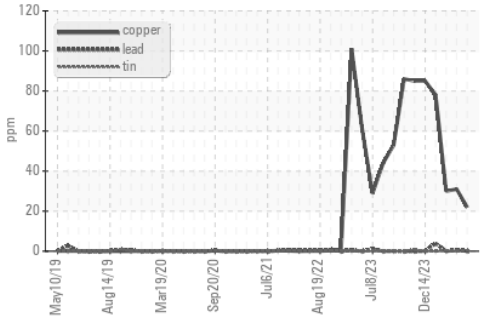
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	14.9	**11.9**	11.9	11.9

GRAPHS

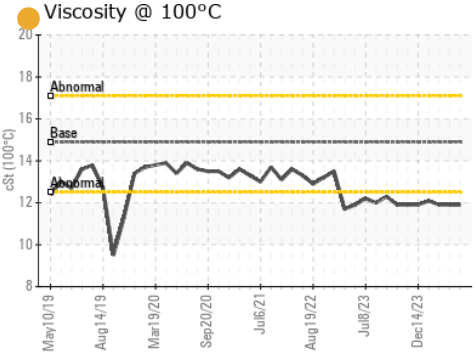
Ferrous Alloys



Non-ferrous Metals



Viscosity @ 100°C



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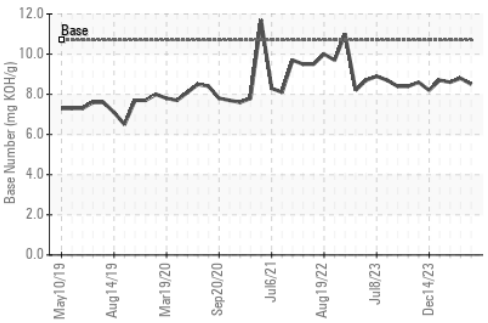

Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : MW0065827
Lab Number : 06178579
Unique Number : 11029905
Test Package : MAR 2

Received : 14 May 2024
Tested : 15 May 2024
Diagnosed : 16 May 2024 - Sean Felton

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)

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