MAR II

WEAR CHECK Inland Marine Oil Analysis Program

OIL ANALYSIS REPORT

WEAR	SEVERE
CONTAMINATION	NORMAL
FLUID CONDITION	ABNORMAL

Machine Id
PAUL F BROTZGE
Component
Starboard Genset
Fluid
CHEVRON DELO 710 LS (5 GAL)

RECOMMENDATION

Oil and filter change at the time of sampling has been noted. We advise that you inspect for the source(s) of wear. We recommend an early resample to monitor this condition.

WEAR

Cylinder, crank, or cam shaft wear is indicated. Bearing and/or bushing wear is indicated.

CONTAMINATION

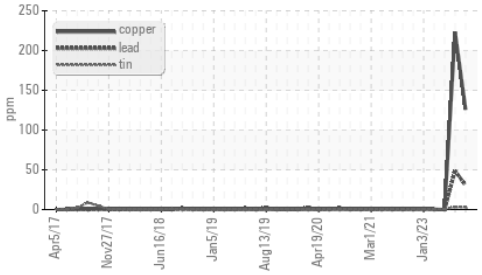
The high sodium (Na) level indicates the possible presence of salt water.

FLUID CONDITION

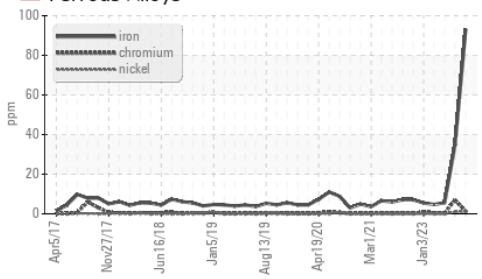
The oil is no longer serviceable as a result of the abnormal and/or severe wear.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		MW0053156	MW0069286	MW0046006
Sample Date		Client Info		29 May 2024	14 Apr 2024	10 Jul 2023
Machine Age	hrs	Client Info		26229	26092	25910
Oil Age	hrs	Client Info		147	276	461
Filter Age	hrs	Client Info		147	276	461
Oil Changed		Client Info		Changed	Changed	Changed
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				SEVERE	SEVERE	NORMAL
Iron	ppm	ASTM D5185m	>50	▲ 93	35	6
Chromium	ppm	ASTM D5185m	>4	1	▲ 7	<1
Nickel	ppm	ASTM D5185m	>2	<1	1	0
Titanium	ppm	ASTM D5185m		<1	<1	<1
Silver	ppm	ASTM D5185m	>5	<1	<1	0
Aluminum	ppm	ASTM D5185m	>12	2	4	2
Lead	ppm	ASTM D5185m	>17	▲ 30	▲ 49	0
Copper	ppm	ASTM D5185m	>70	▲ 126	▲ 223	0
Tin	ppm	ASTM D5185m	>15	2	3	<1
Vanadium	ppm	ASTM D5185m		0	<1	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Silicon	ppm	ASTM D5185m	>25	3	5	3
Potassium	ppm	ASTM D5185m	>20	11	18	2
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	1.1	0.1
Nitration	Abs/cm	*ASTM D7624	>20	6.1	9.6	8.3
Sulfation	Abs/.1mm	*ASTM D7415	>30	17.3	23.4	15.6
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
Sodium	ppm	ASTM D5185m		▲ 267	▲ 447	2
Boron	ppm	ASTM D5185m		25	16	53
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m		35	41	50
Manganese	ppm	ASTM D5185m		3	3	<1
Magnesium	ppm	ASTM D5185m		10	15	31
Calcium	ppm	ASTM D5185m		2246	1997	3936
Phosphorus	ppm	ASTM D5185m		11	21	22
Zinc	ppm	ASTM D5185m		102	73	22
Sulfur	ppm	ASTM D5185m		3156	3674	3025
Oxidation	Abs/.1mm	*ASTM D7414	>25	6.3	20.4	9.0
Base Number (BN)	mg KOH/g	ASTM D2896	10.5	5.2	9.2	7.1
Visc @ 100°C	cSt	ASTM D445	15.5	13.7	15.2	13.8

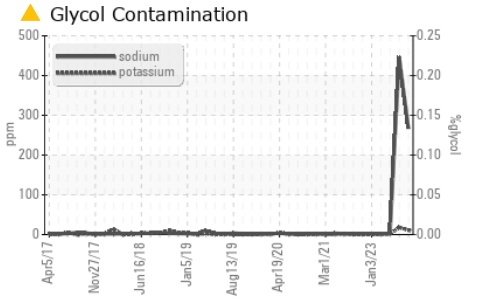
Non-ferrous Metals



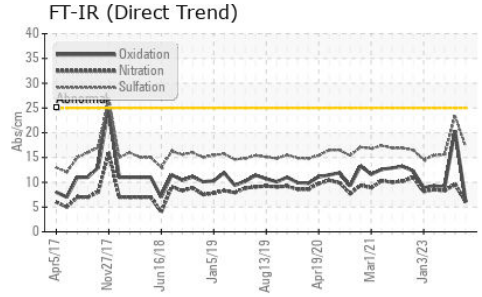
Ferrous Alloys



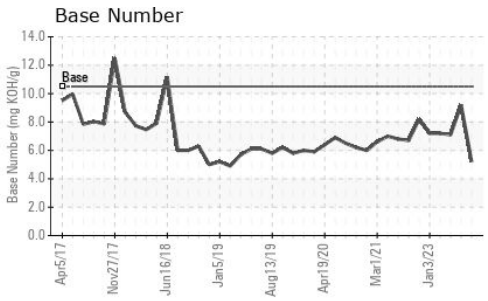
Glycol Contamination



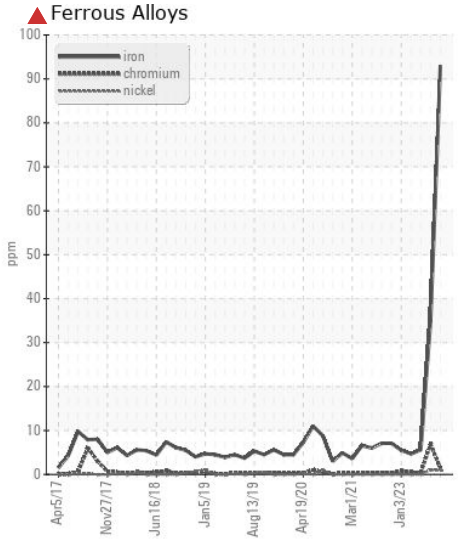
FT-IR (Direct Trend)



Base Number



Ferrous Alloys



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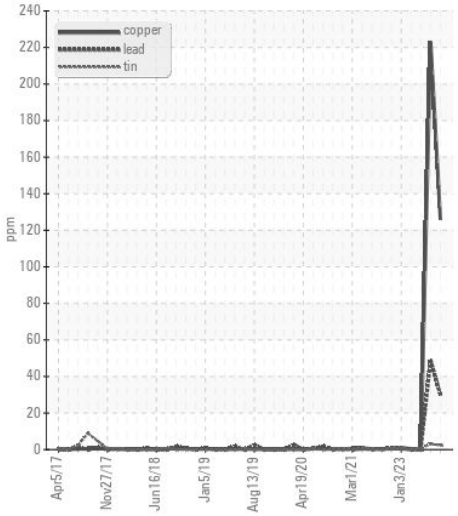
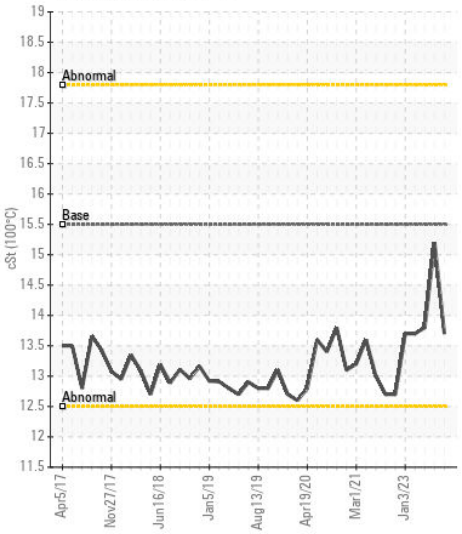


Viscosity @ 100°C



Base Number

Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : MW0053156
Lab Number : 06217465
Unique Number : 11090329
Test Package : MAR 2

Received : 21 Jun 2024
Tested : 25 Jun 2024
Diagnosed : 25 Jun 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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