MAR II

WEAR CHECK Inland Marine Oil Analysis Program

OIL ANALYSIS REPORT

WEAR	ABNORMAL
CONTAMINATION	ABNORMAL
FLUID CONDITION	ABNORMAL

Machine Id
LOUISIANA HERITAGE
Component
Port Main Engine
Fluid
CHEVRON DELO 400 MULTIGRADE 15W40 (44 GAL)

RECOMMENDATION

We advise that you check the fuel injection system. Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

WEAR

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

CONTAMINATION

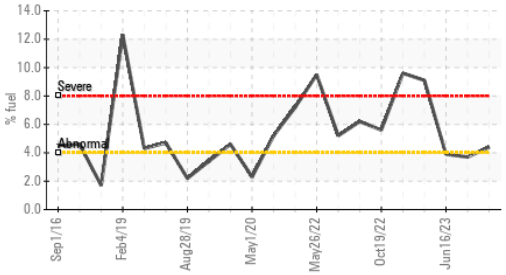
There is a moderate amount of fuel present in the oil.

FLUID CONDITION

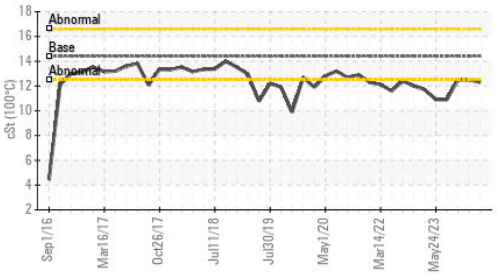
Fuel is present in the oil and is lowering the viscosity. The BN result indicates that there is suitable alkalinity remaining in the oil.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		MW0052251	MW0042768	MW0042860
Sample Date		Client Info		03 Jan 2024	17 Oct 2023	16 Jun 2023
Machine Age	hrs	Client Info		36094	34541	31865
Oil Age	hrs	Client Info		1553	1551	0
Filter Age	hrs	Client Info		1553	1551	0
Oil Changed		Client Info		Changed	Changed	N/A
Filter Changed		Client Info		Changed	Changed	N/A
Sample Status				ABNORMAL	ATTENTION	MARGINAL
Iron	ppm	ASTM D5185m	>75	12	13	6
Chromium	ppm	ASTM D5185m	>8	<1	<1	<1
Nickel	ppm	ASTM D5185m	>2	<1	0	0
Titanium	ppm	ASTM D5185m	>3	13	12	13
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>15	1	1	0
Lead	ppm	ASTM D5185m	>18	▲ 26	8	<1
Copper	ppm	ASTM D5185m	>80	7	1	<1
Tin	ppm	ASTM D5185m	>14	1	<1	0
Vanadium	ppm	ASTM D5185m		<1	0	<1
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Silicon	ppm	ASTM D5185m	>20	4	4	4
Potassium	ppm	ASTM D5185m	>20	1	3	2
Fuel	%	ASTM D3524	>4.0	▲ 4.4	▲ 3.7	▲ 3.9
Water		WC Method	>0.1	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844		0.3	0.4	0.2
Nitration	Abs/cm	*ASTM D7624	>20	9.8	9.9	8.0
Sulfation	Abs/.1mm	*ASTM D7415	>30	19.9	19.5	18.7
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
Sodium	ppm	ASTM D5185m	>75	2	2	3
Boron	ppm	ASTM D5185m	151	77	▲ 56	105
Barium	ppm	ASTM D5185m	0.4	0	0	0
Molybdenum	ppm	ASTM D5185m	250	33	▲ 31	30
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m	0	710	610	619
Calcium	ppm	ASTM D5185m	2046	1830	1623	1621
Phosphorus	ppm	ASTM D5185m	1043	813	735	714
Zinc	ppm	ASTM D5185m	943	989	867	811
Sulfur	ppm	ASTM D5185m	5012	3528	3000	3415
Oxidation	Abs/.1mm	*ASTM D7414	>25	16.6	16.1	13.5
Base Number (BN)	mg KOH/g	ASTM D2896	12.5	7.7	7.3	8.7
Visc @ 100°C	cSt	ASTM D445	14.4	▲ 12.3	12.5	12.5

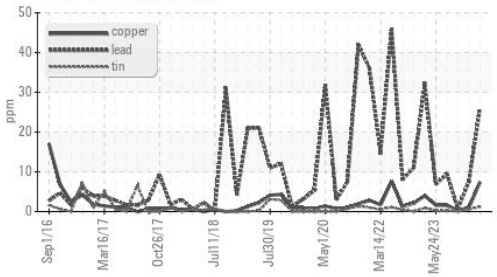
Fuel Dilution



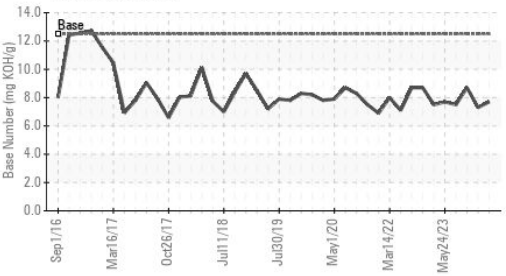
Viscosity @ 100°C



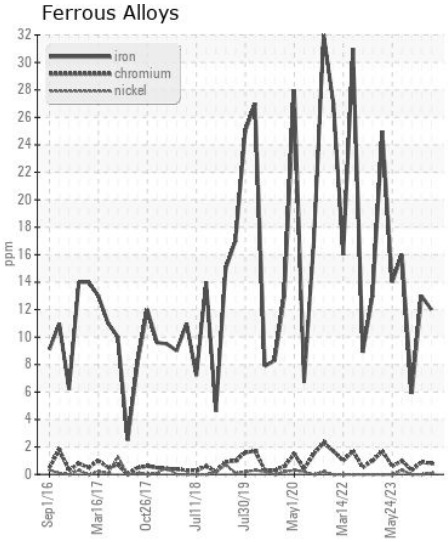
Non-ferrous Metals



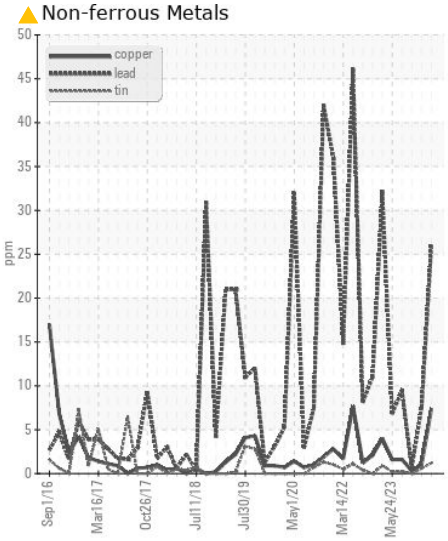
Base Number



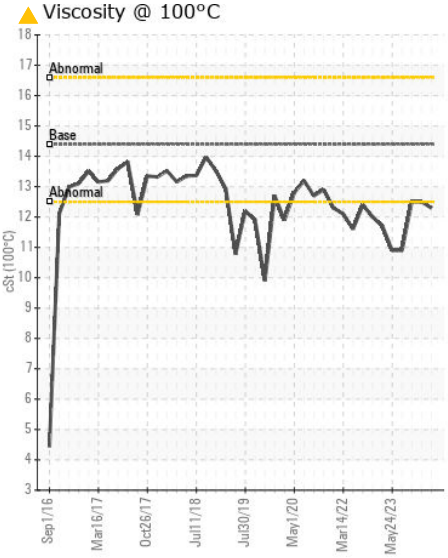
Ferrous Alloys



Non-ferrous Metals



Viscosity @ 100°C



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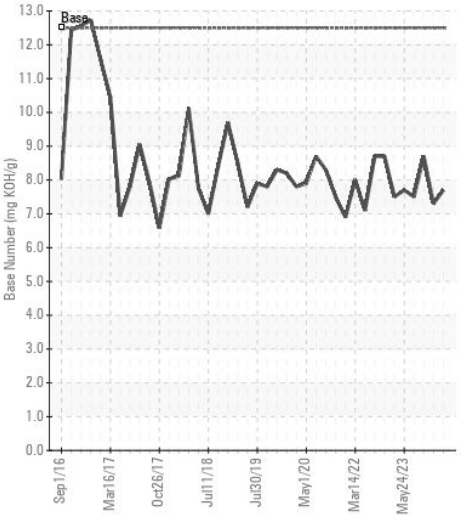

Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : MW0052251 **Recieved** : 12 Jan 2024
Lab Number : 06058941 **Diagnosed** : 16 Jan 2024
Unique Number : 10830323 **Diagnostician** : Don Baldridge
Test Package : MAR 2 (Additional Tests: FUELDILUTION, PercentFuel)

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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