MAR II

WEAR CHECK Inland Marine Oil Analysis Program

OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	ABNORMAL
FLUID CONDITION	ABNORMAL

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

RECOMMENDATION

We recommend that you change the oil at the next available stoppage or outage. We recommend an early resample to monitor this condition. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample. Please specify the component make and model with your next sample.

WEAR

All component wear rates are normal.

CONTAMINATION

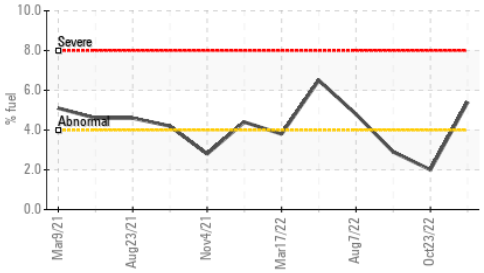
There is a moderate amount of fuel present in the oil. Tests confirm the presence of fuel in the oil.

FLUID CONDITION

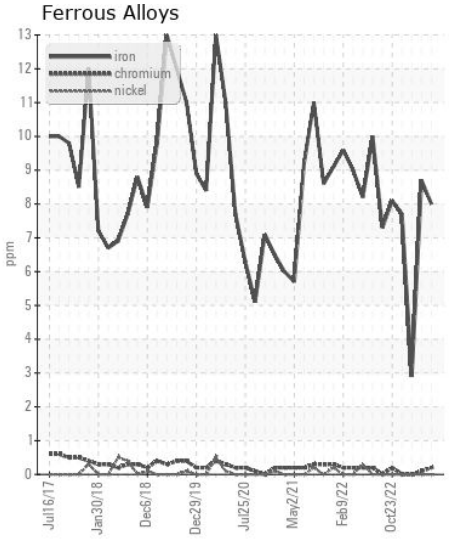
The BN result indicates that there is suitable alkalinity remaining in the oil. Fuel is present in the oil and is lowering the viscosity. The oil is no longer serviceable due to the presence of contaminants.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		MW05823784	MW05765710	MW05745150
Sample Date		Client Info		18 Apr 2023	12 Feb 2023	19 Jan 2023
Machine Age	hrs	Client Info		21210	19742	19106
Oil Age	hrs	Client Info		606	636	642
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				ABNORMAL	ATTENTION	ATTENTION
Iron	ppm	ASTM D5185m	>75	8	9	3
Chromium	ppm	ASTM D5185m	>8	<1	<1	0
Nickel	ppm	ASTM D5185m	>2	0	0	0
Titanium	ppm	ASTM D5185m	>3	<1	<1	1
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>15	0	2	0
Lead	ppm	ASTM D5185m	>18	15	13	0
Copper	ppm	ASTM D5185m	>80	3	2	1
Tin	ppm	ASTM D5185m	>14	<1	<1	0
Vanadium	ppm	ASTM D5185m		0	0	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Silicon	ppm	ASTM D5185m	>20	5	5	4
Potassium	ppm	ASTM D5185m	>20	1	0	1
Fuel	%	ASTM D3524	>4.0	▲ 5.4	<1.0	<1.0
Water		WC Method	>0.1	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844		0.2	0.2	0.2
Nitration	Abs/cm	*ASTM D7624	>20	7.6	7.4	7.5
Sulfation	Abs/.1mm	*ASTM D7415	>30	24.2	23.5	23.6
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	>75	<1	1	<1
Boron	ppm	ASTM D5185m		300	379	307
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m		96	90	79
Manganese	ppm	ASTM D5185m		<1	<1	0
Magnesium	ppm	ASTM D5185m		483	441	426
Calcium	ppm	ASTM D5185m		1472	1357	1307
Phosphorus	ppm	ASTM D5185m	760	718	841	780
Zinc	ppm	ASTM D5185m	830	865	994	936
Sulfur	ppm	ASTM D5185m	2770	2302	3236	2638
Oxidation	Abs/.1mm	*ASTM D7414	>25	22.1	20.4	20.5
Base Number (BN)	mg KOH/g	ASTM D2896	10.7	6.8	7.0	6.8
Visc @ 100°C	cSt	ASTM D445	14.9	▲ 11.2	12.1	12.0

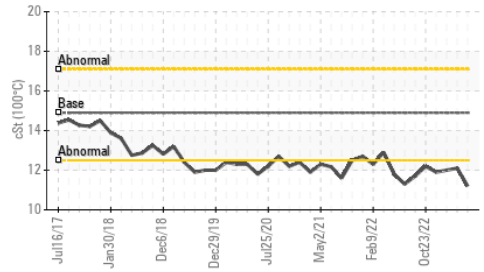
Fuel Dilution



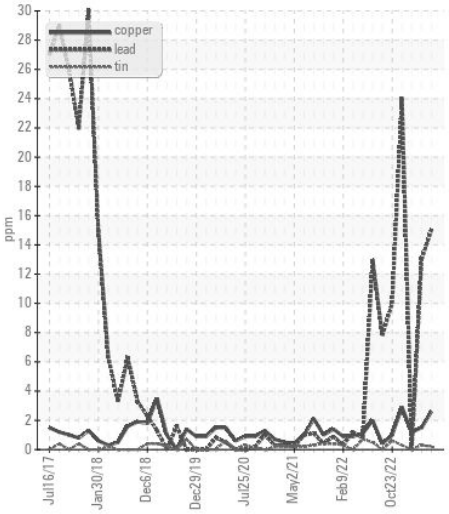
Ferrous Alloys



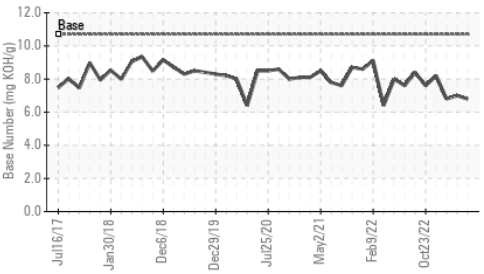
Viscosity @ 100°C



Non-ferrous Metals



Base Number



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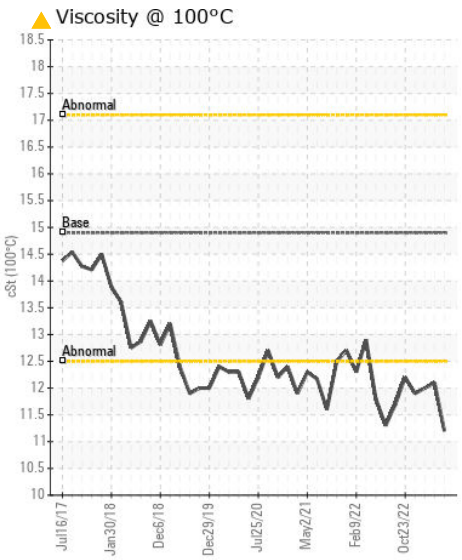

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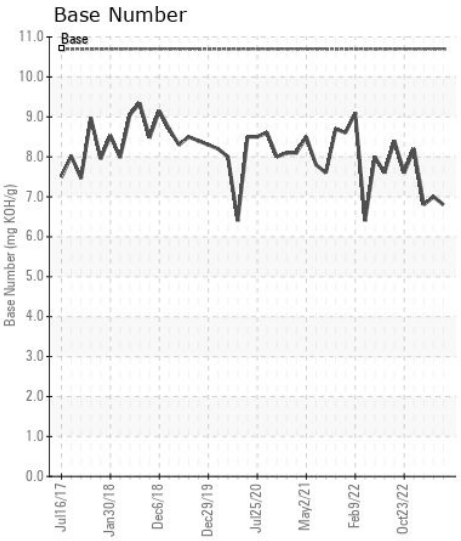

Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : MW05823784 **Received** : 19 Apr 2023
Lab Number : 05823784 **Tested** : 21 Apr 2023
Unique Number : 10431867 **Diagnosed** : 21 Apr 2023 - Wes Davis
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)

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