MAR II

WEAR CHECK Inland Marine Oil Analysis Program

OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	SEVERE
FLUID CONDITION	ABNORMAL

Machine Id
WMC
Component
Starboard Genset
Fluid
CHEVRON URSA SUPER PLUS 40 (--- GAL)

RECOMMENDATION

We advise that you check the fuel injection system. We recommend that you drain the oil and perform a filter service on this component if not already done. We recommend an early resample to monitor this condition.

WEAR

All component wear rates are normal.

CONTAMINATION

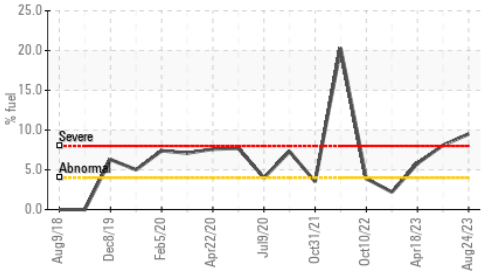
There is a high amount of fuel present in the oil.

FLUID CONDITION

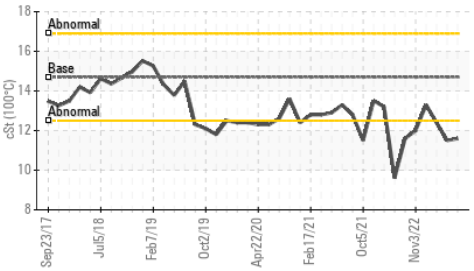
Fuel is present in the oil and is lowering the viscosity. The oil is no longer serviceable due to the presence of contaminants.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		MW05934665	MW05862893	MW05823776
Sample Date		Client Info		24 Aug 2023	01 Jun 2023	18 Apr 2023
Machine Age	hrs	Client Info		50638	49758	49041
Oil Age	hrs	Client Info		880	717	615
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				SEVERE	ABNORMAL	ABNORMAL
Iron	ppm	ASTM D5185m	>25	8	5	9
Chromium	ppm	ASTM D5185m	>5	0	0	<1
Nickel	ppm	ASTM D5185m	>5	0	0	0
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>5	0	0	0
Aluminum	ppm	ASTM D5185m	>10	<1	0	0
Lead	ppm	ASTM D5185m	>10	3	2	2
Copper	ppm	ASTM D5185m	>20	<1	<1	<1
Tin	ppm	ASTM D5185m	>5	<1	<1	<1
Vanadium	ppm	ASTM D5185m		<1	0	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Silicon	ppm	ASTM D5185m	>25	10	7	7
Potassium	ppm	ASTM D5185m	>20	<1	1	2
Fuel	%	ASTM D3524	>4.0	▲ 9.5	▲ 8.1	▲ 5.8
Water		WC Method	>0.1	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844		0.1	0.1	0.1
Nitration	Abs/cm	*ASTM D7624	>20	11.0	10.6	9.3
Sulfation	Abs/.1mm	*ASTM D7415	>30	28.4	29.1	24.1
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		2	1	<1
Boron	ppm	ASTM D5185m		254	249	345
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m		85	86	62
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m		412	463	206
Calcium	ppm	ASTM D5185m		1385	1560	2138
Phosphorus	ppm	ASTM D5185m	1000	822	640	760
Zinc	ppm	ASTM D5185m	1090	1059	820	976
Sulfur	ppm	ASTM D5185m		3162	2766	2769
Oxidation	Abs/.1mm	*ASTM D7414	>25	37.1	34.8	26.0
Base Number (BN)	mg KOH/g	ASTM D2896	7.4	4.4	5.7	5.4
Visc @ 100°C	cSt	ASTM D445	14.7	▲ 11.6	▲ 11.5	▲ 12.4

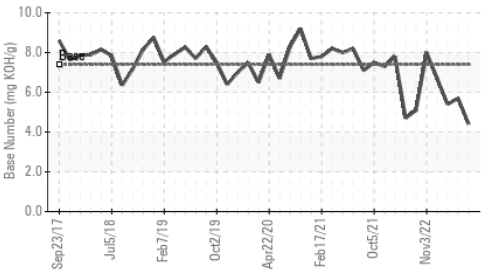
Fuel Dilution



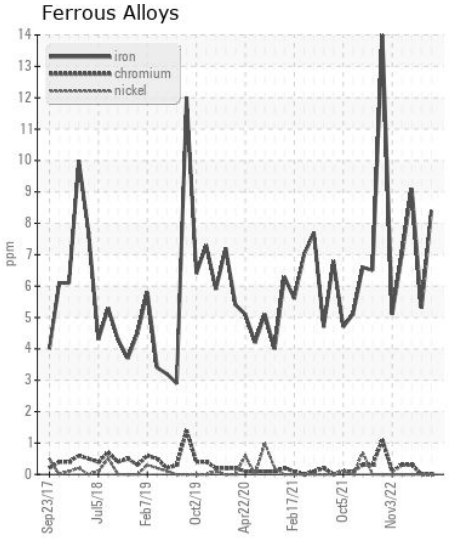
Viscosity @ 100°C



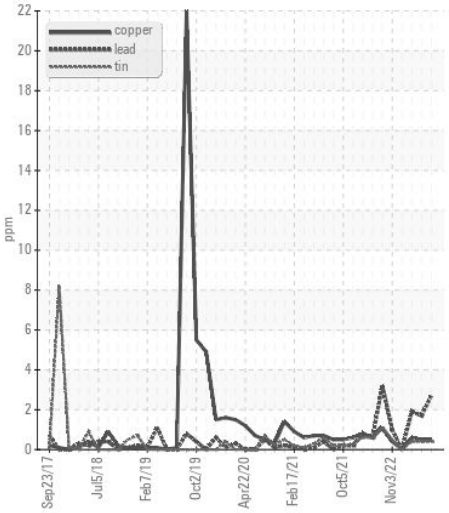
Base Number



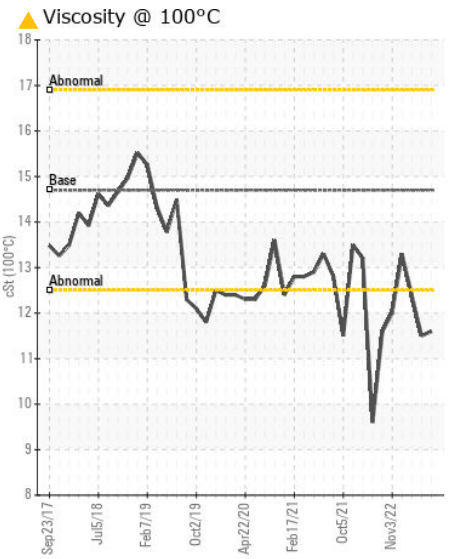
Ferrous Alloys



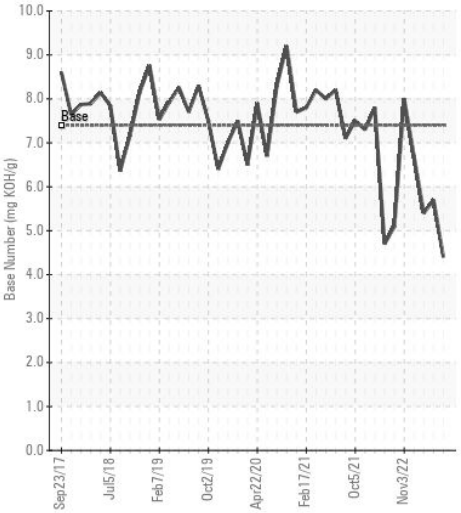
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : MW05934665 **Received** : 25 Aug 2023
Lab Number : 05934665 **Tested** : 28 Aug 2023
Unique Number : 10619936 **Diagnosed** : 28 Aug 2023 - Don Baldridge
Test Package : MAR 2 (Additional Tests: 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