MAR II

WEAR CHECK Inland Marine Oil Analysis Program

OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	ABNORMAL
FLUID CONDITION	ABNORMAL

Machine Id
EIC
Component
Starboard 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. Please specify the component make and model with your next sample.

WEAR

All component wear rates are normal.

CONTAMINATION

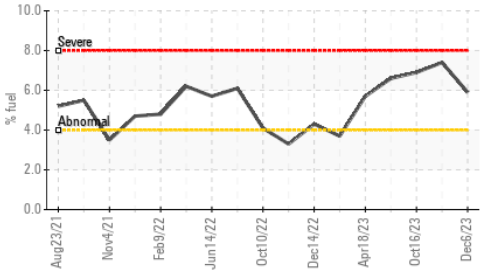
There is a moderate amount of fuel present in the oil. Tests confirm the presence of fuel in the oil.

FLUID CONDITION

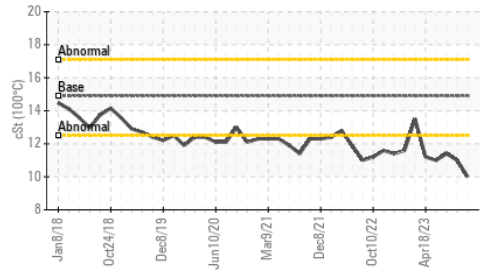
The BN result indicates that there is suitable alkalinity remaining in the oil. Fuel is present in the oil and is lowering the viscosity. The oil is no longer serviceable due to the presence of contaminants.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		MW06028301	MW05981753	MW05981749
Sample Date		Client Info		06 Dec 2023	16 Oct 2023	16 Oct 2023
Machine Age	hrs	Client Info		23446	22534	22344
Oil Age	hrs	Client Info		912	497	307
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	ABNORMAL	ABNORMAL
Iron	ppm	ASTM D5185m	>75	8	5	5
Chromium	ppm	ASTM D5185m	>8	<1	<1	<1
Nickel	ppm	ASTM D5185m	>2	0	<1	<1
Titanium	ppm	ASTM D5185m	>3	<1	<1	<1
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>15	2	2	2
Lead	ppm	ASTM D5185m	>18	13	7	7
Copper	ppm	ASTM D5185m	>80	4	2	2
Tin	ppm	ASTM D5185m	>14	0	<1	<1
Vanadium	ppm	ASTM D5185m		0	<1	<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	2	2	2
Fuel	%	ASTM D3524	>4.0	▲ 5.9	▲ 7.4	▲ 6.9
Water		WC Method	>0.1	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844		0.2	0.1	0.1
Nitration	Abs/cm	*ASTM D7624	>20	7.7	6.7	6.5
Sulfation	Abs/.1mm	*ASTM D7415	>30	22.0	23.3	22.3
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	0	0	0
Boron	ppm	ASTM D5185m		159	389	409
Barium	ppm	ASTM D5185m		5	10	10
Molybdenum	ppm	ASTM D5185m		49	91	93
Manganese	ppm	ASTM D5185m		0	0	0
Magnesium	ppm	ASTM D5185m		218	414	426
Calcium	ppm	ASTM D5185m		1886	1279	1311
Phosphorus	ppm	ASTM D5185m	760	854	835	816
Zinc	ppm	ASTM D5185m	830	991	976	994
Sulfur	ppm	ASTM D5185m	2770	3446	2841	3048
Oxidation	Abs/.1mm	*ASTM D7414	>25	20.6	21.3	19.7
Base Number (BN)	mg KOH/g	ASTM D2896	10.7	4.9	6.7	7.3
Visc @ 100°C	cSt	ASTM D445	14.9	▲ 10.0	▲ 11.0	▲ 11.4

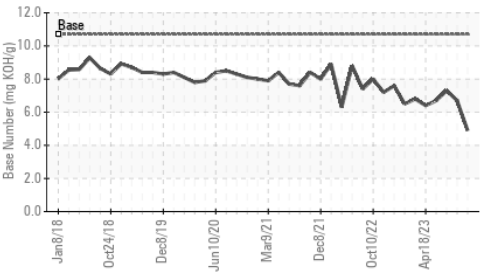
Fuel Dilution



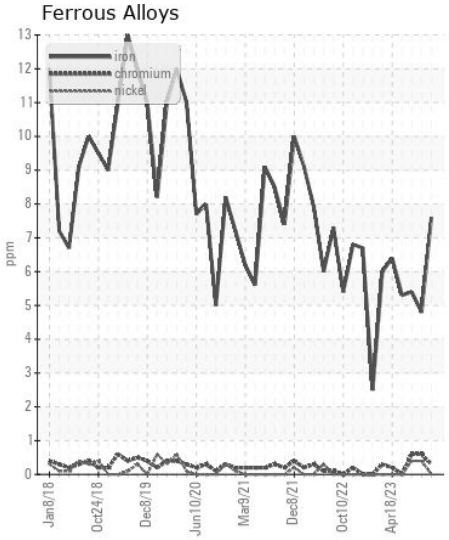
Viscosity @ 100°C



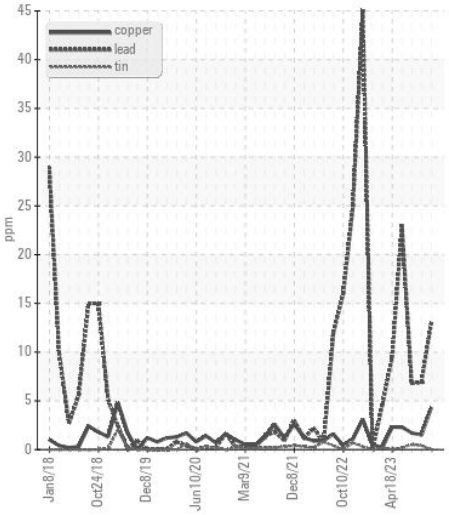
Base Number



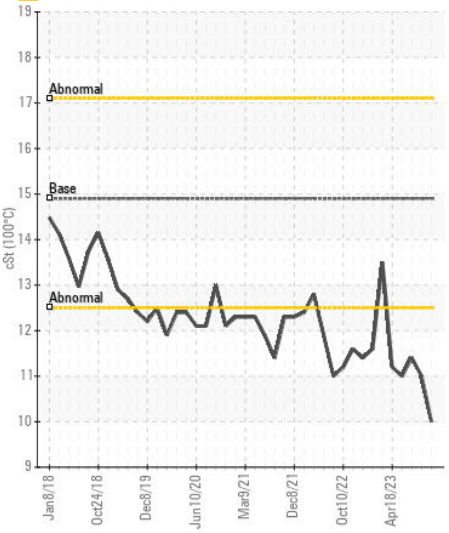
Ferrous Alloys



Non-ferrous Metals



Viscosity @ 100°C



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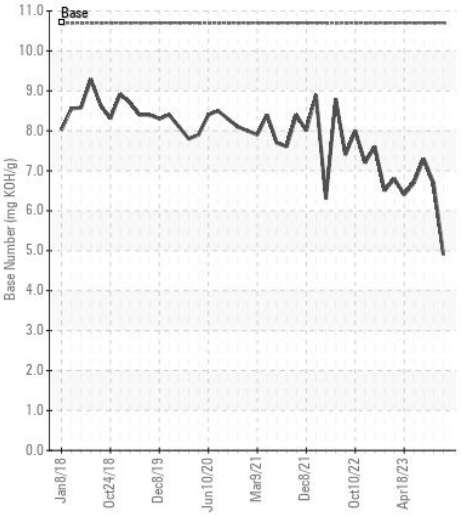

Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : MW06028301 **Received** : 07 Dec 2023
Lab Number : 06028301 **Tested** : 14 Dec 2023
Unique Number : 10778092 **Diagnosed** : 14 Dec 2023 - Wes Davis
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)

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