MAR II

WEAR CHECK Inland Marine Oil Analysis Program

OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Machine Id
CWR
Component
Starboard Main Engine
Fluid
CHEVRON DELO 400 XLE 15W40 (39 GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

WEAR

All component wear rates are normal.

CONTAMINATION

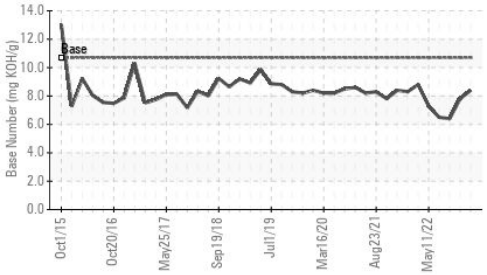
Elevated aluminum (Al) and/or lead (Pb) and potassium (K) levels in your metals analysis are likely a result of solder flux release into the lubricant and is common on new equipment/components. There is no indication of any contamination in the oil.

FLUID CONDITION

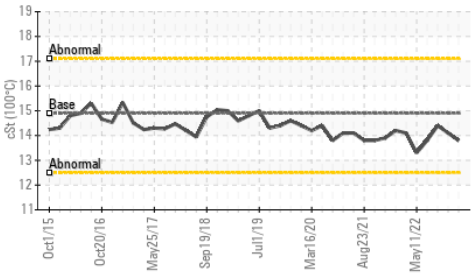
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		MW05877881	MW05749255	MW05685051
Sample Date		Client Info		19 Jun 2023	24 Jan 2023	03 Nov 2022
Machine Age	hrs	Client Info		49704	49053	48570
Oil Age	hrs	Client Info		651	483	717
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				NORMAL	NORMAL	ABNORMAL
Iron	ppm	ASTM D5185m	>75	12	22	47
Chromium	ppm	ASTM D5185m	>8	<1	<1	<1
Nickel	ppm	ASTM D5185m	>2	<1	<1	<1
Titanium	ppm	ASTM D5185m	>3	<1	<1	3
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>15	2	4	3
Lead	ppm	ASTM D5185m	>18	1	7	▲ 23
Copper	ppm	ASTM D5185m	>80	2	3	6
Tin	ppm	ASTM D5185m	>14	<1	1	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	>20	5	6	7
Potassium	ppm	ASTM D5185m	>20	4	3	7
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		0.3	0.4	0.7
Nitration	Abs/cm	*ASTM D7624	>20	9.9	9.9	13.3
Sulfation	Abs/.1mm	*ASTM D7415	>30	24.1	24.8	31.6
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	0	4
Boron	ppm	ASTM D5185m		295	272	159
Barium	ppm	ASTM D5185m		2	<1	0
Molybdenum	ppm	ASTM D5185m		103	101	100
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m		515	570	676
Calcium	ppm	ASTM D5185m		1545	1624	1619
Phosphorus	ppm	ASTM D5185m	760	734	746	883
Zinc	ppm	ASTM D5185m	830	890	928	1091
Sulfur	ppm	ASTM D5185m	2770	2814	2965	3586
Oxidation	Abs/.1mm	*ASTM D7414	>25	20.9	22.6	33.5
Base Number (BN)	mg KOH/g	ASTM D2896	10.7	8.4	7.8	6.4
Visc @ 100°C	cSt	ASTM D445	14.9	13.8	14.1	14.4

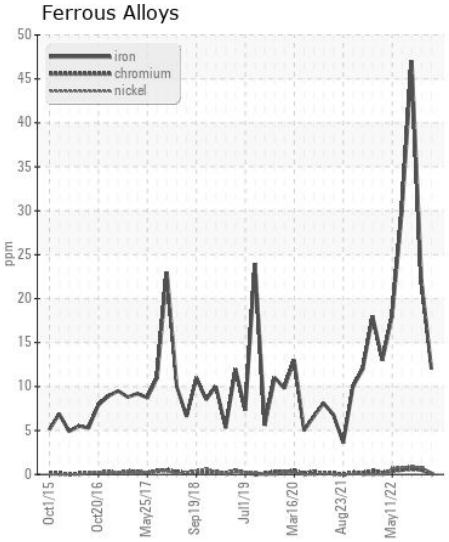
Base Number



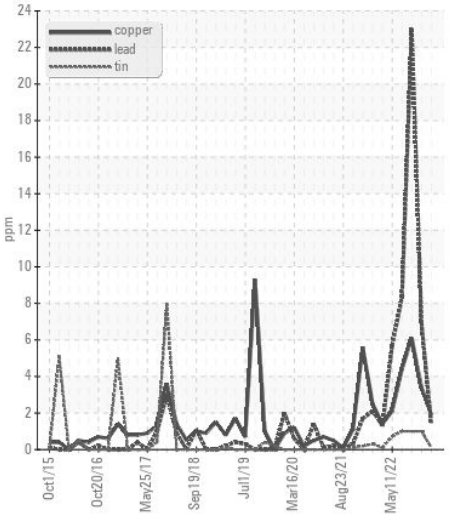
Viscosity @ 100°C



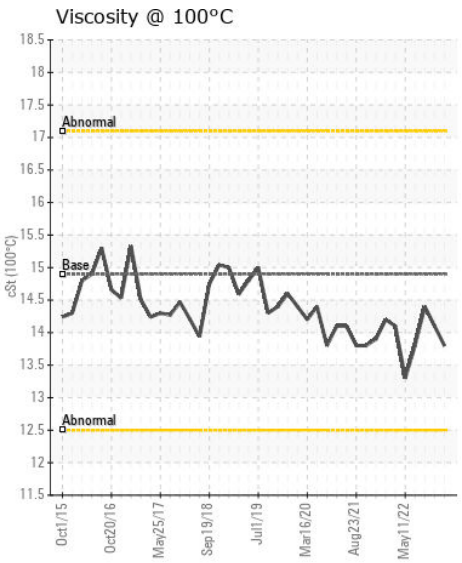
Ferrous Alloys



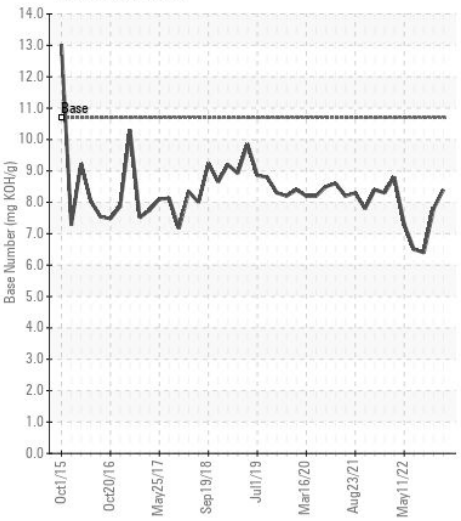
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : MW05877881
Lab Number : 05877881
Unique Number : 10522984
Test Package : MAR 2

Received : 20 Jun 2023
Tested : 21 Jun 2023
Diagnosed : 21 Jun 2023 - Wes Davis

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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