MAR II

WEAR CHECK Inland Marine Oil Analysis Program

OIL ANALYSIS REPORT

WEAR	ABNORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Machine Id
CUMMINS MV JL BRADEN
Component
Starboard Main Engine
Fluid
VALVOLINE 15W40 (16 GAL)

RECOMMENDATION

Oil and filter change at the time of sampling has been noted. No corrective action is recommended at this time. Resample at the next service interval to monitor.

WEAR

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

CONTAMINATION

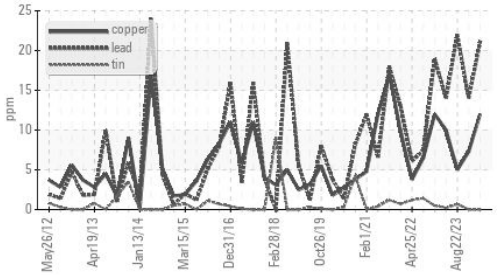
There is no indication of any contamination in the oil.

FLUID CONDITION

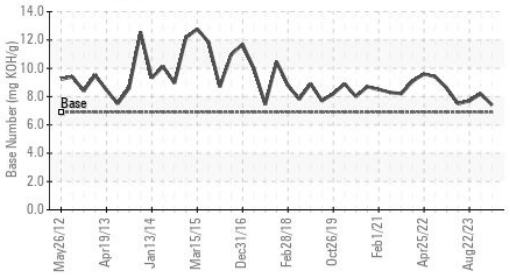
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		MW0039000	MW0038998	MW0056965
Sample Date		Client Info		02 Jan 2024	30 Oct 2023	22 Aug 2023
Machine Age	hrs	Client Info		88429	87410	86402
Oil Age	hrs	Client Info		1000	0	0
Filter Age	hrs	Client Info		1000	0	0
Oil Changed		Client Info		Changed	N/A	Changed
Filter Changed		Client Info		Changed	N/A	Changed
Sample Status				ABNORMAL	NORMAL	SEVERE
Iron	ppm	ASTM D5185m	>75	65	39	21
Chromium	ppm	ASTM D5185m	>8	2	1	<1
Nickel	ppm	ASTM D5185m	>2	0	0	<1
Titanium	ppm	ASTM D5185m	>3	<1	0	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>15	4	3	2
Lead	ppm	ASTM D5185m	>18	▲ 21	14	▲ 22
Copper	ppm	ASTM D5185m	>80	12	7	5
Tin	ppm	ASTM D5185m	>14	0	0	<1
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	8	6	5
Potassium	ppm	ASTM D5185m	>20	3	1	<1
Fuel		WC Method	>4.0	<1.0	1.9	⬢ 9.0
Water		WC Method	>0.1	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844		0.2	0.4	0.3
Nitration	Abs/cm	*ASTM D7624	>20	8.4	11.1	11.8
Sulfation	Abs/.1mm	*ASTM D7415	>30	23.9	26.7	26.5
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	LIGHT	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	8	0	0
Boron	ppm	ASTM D5185m	39	318	255	234
Barium	ppm	ASTM D5185m	1	0	0	<1
Molybdenum	ppm	ASTM D5185m	49	138	136	117
Manganese	ppm	ASTM D5185m	1	0	0	<1
Magnesium	ppm	ASTM D5185m	616	725	686	570
Calcium	ppm	ASTM D5185m	1554	1646	1558	1352
Phosphorus	ppm	ASTM D5185m	899	747	718	581
Zinc	ppm	ASTM D5185m	1069	909	879	738
Sulfur	ppm	ASTM D5185m	2624	2759	2685	2439
Oxidation	Abs/.1mm	*ASTM D7414	>25	18.2	24.9	26.6
Base Number (BN)	mg KOH/g	ASTM D2896	6.9	7.4	8.2	7.7
Visc @ 100°C	cSt	ASTM D445	13.6	13.3	13.3	▲ 12.1

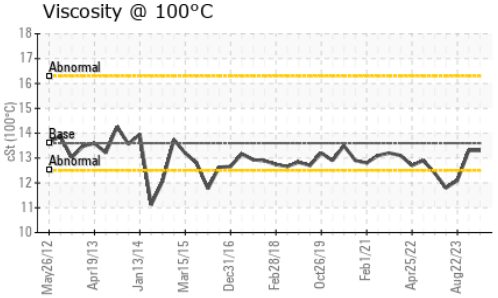
Non-ferrous Metals



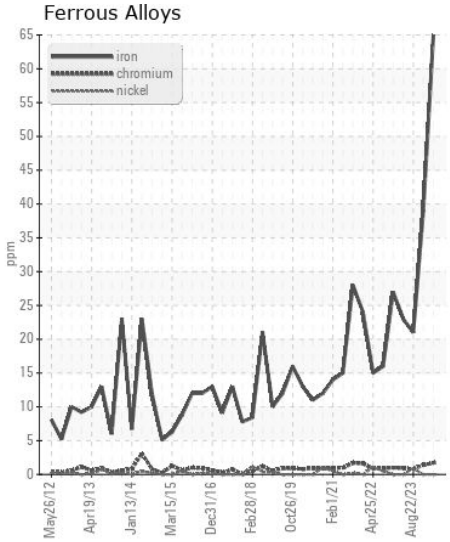
Base Number



Viscosity @ 100°C



Ferrous Alloys



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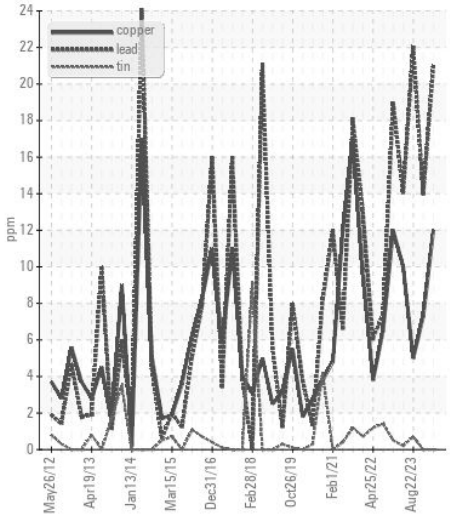

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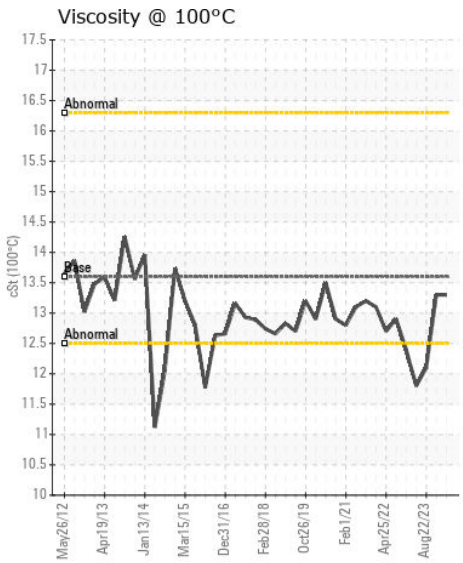

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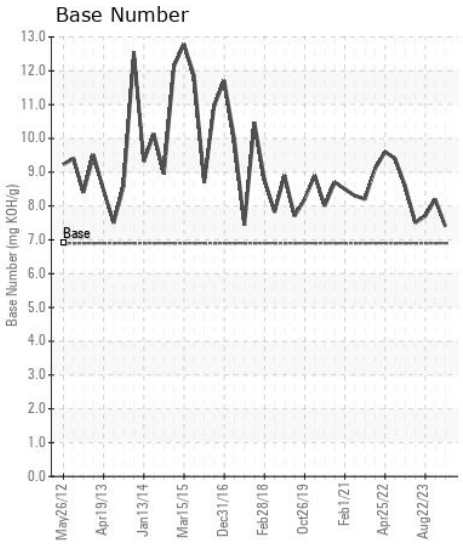

Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : MW0039000
Lab Number : 06057244
Unique Number : 10823193
Test Package : MAR 2

Recieved : 10 Jan 2024
Diagnosed : 12 Jan 2024
Diagnostician : Sean Felton

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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