MOB II WEAR CHECK

OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	ABNORMAL
FLUID CONDITION	ABNORMAL

Area
RIG 2
Machine Id
CATERPILLAR 3512 R2-G-02-NKL
Component
Diesel Engine
Fluid
CHEVRON 15W40 (--- GAL)

RECOMMENDATION

We advise that you check the fuel injection system. We recommend you service the filters on this component. Resample at the next service interval to monitor.

WEAR

All component wear rates are normal.

CONTAMINATION

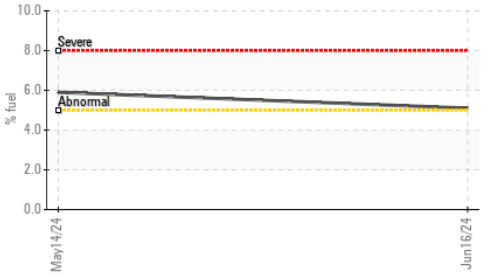
There is a high amount of particulates present in the oil. There is a moderate amount of fuel present in the oil.

FLUID CONDITION

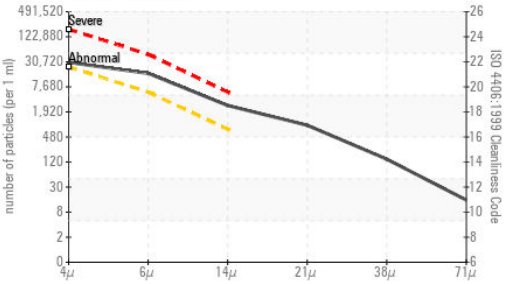
The BN result indicates that there is suitable alkalinity remaining in the oil. Fuel is present in the oil and is lowering the viscosity.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		KL0014442	KL0014262	KL0014242
Sample Date		Client Info		16 Jun 2024	14 May 2024	03 Apr 2024
Machine Age	days	Client Info		45449	45416	45375
Oil Age	days	Client Info		0	0	0
Filter Age	days	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	NORMAL
Iron	ppm	ASTM D5185m	>100	1	4	3
Chromium	ppm	ASTM D5185m	>20	0	<1	0
Nickel	ppm	ASTM D5185m	>2	<1	<1	0
Titanium	ppm	ASTM D5185m	>2	1	4	11
Silver	ppm	ASTM D5185m	>2	0	1	0
Aluminum	ppm	ASTM D5185m	>25	2	2	1
Lead	ppm	ASTM D5185m	>40	0	<1	0
Copper	ppm	ASTM D5185m	>330	0	1	1
Tin	ppm	ASTM D5185m	>15	<1	<1	0
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	>25	6	6	8
Potassium	ppm	ASTM D5185m	>20	<1	3	3
Fuel	%	ASTM D3524	>5	▲ 5.1	▲ 5.9	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>3	0.3	0.2	0.2
Nitration	Abs/cm	*ASTM D7624	>20	6.3	6.7	7.3
Sulfation	Abs/.1mm	*ASTM D7415	>30	20.7	20.2	17.6
Particles >4µm		ASTM D7647	>20000	▲ 25812	8873	3132
Particles >6µm		ASTM D7647	>5000	▲ 14061	4834	1706
Particles >14µm		ASTM D7647	>640	▲ 2393	● 823	290
Particles >21µm		ASTM D7647	>160	▲ 806	● 277	98
Particles >38µm		ASTM D7647	>40	▲ 124	● 43	15
Particles >71µm		ASTM D7647	>10	▲ 13	4	2
Oil Cleanliness		ISO 4406 (c)	>21/19/16	▲ 22/21/18	● 20/19/17	19/18/15
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	>0.2	NEG	NEG	NEG
Sodium	ppm	ASTM D5185m	>50	2	2	2
Boron	ppm	ASTM D5185m		361	353	128
Barium	ppm	ASTM D5185m		0	1	0
Molybdenum	ppm	ASTM D5185m		75	69	37
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m		383	440	672
Calcium	ppm	ASTM D5185m		1312	1310	1416
Phosphorus	ppm	ASTM D5185m		984	835	680
Zinc	ppm	ASTM D5185m		1134	1051	744
Sulfur	ppm	ASTM D5185m		3564	3069	3253
Oxidation	Abs/.1mm	*ASTM D7414	>25	14.6	14.4	12.4
Base Number (BN)	mg KOH/g	ASTM D2896		8.23	8.12	8.80
Visc @ 100°C	cSt	ASTM D445	14.4	▲ 12.0	▲ 11.9	13.2

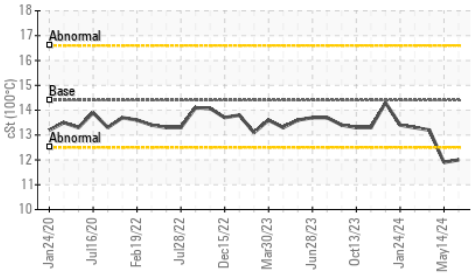
Fuel Dilution



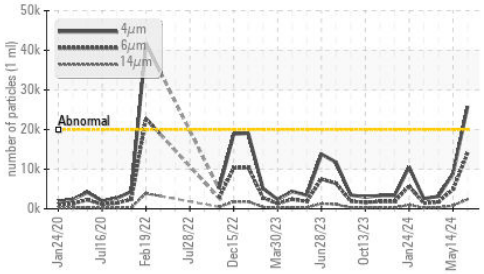
Particle Count



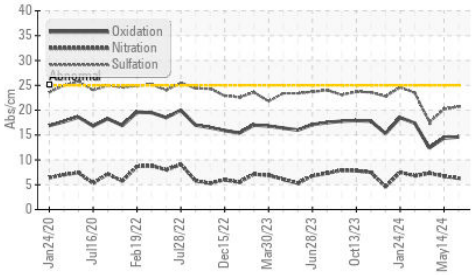
Viscosity @ 100°C



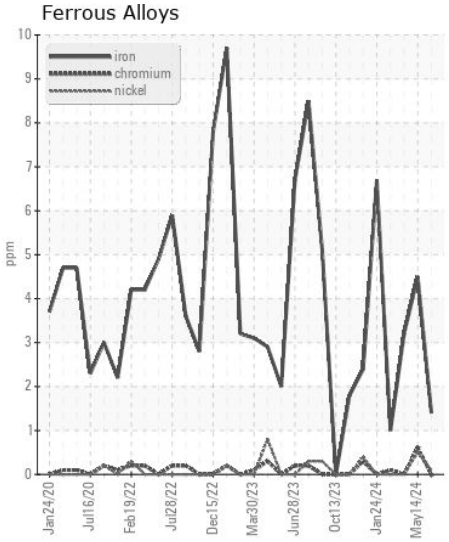
Particle Trend



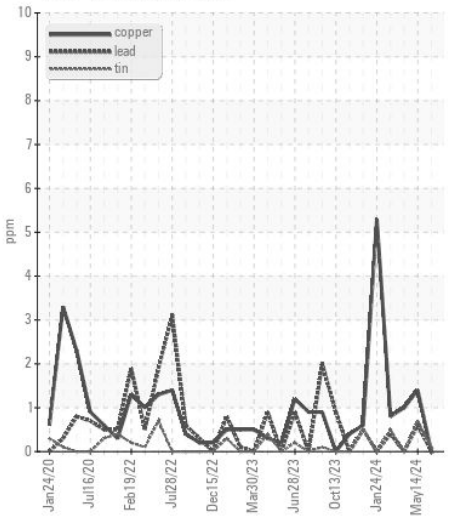
FT-IR (Direct Trend)



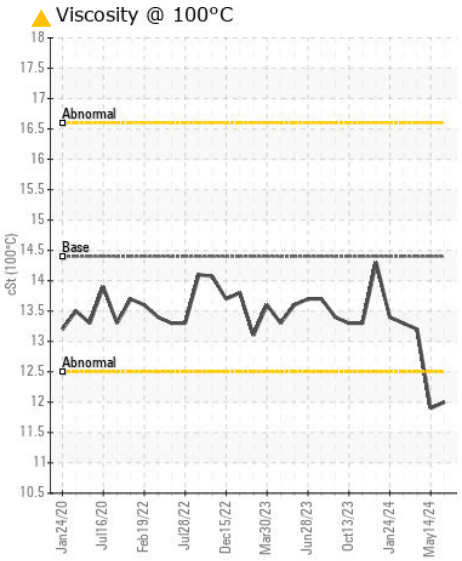
Ferrous Alloys



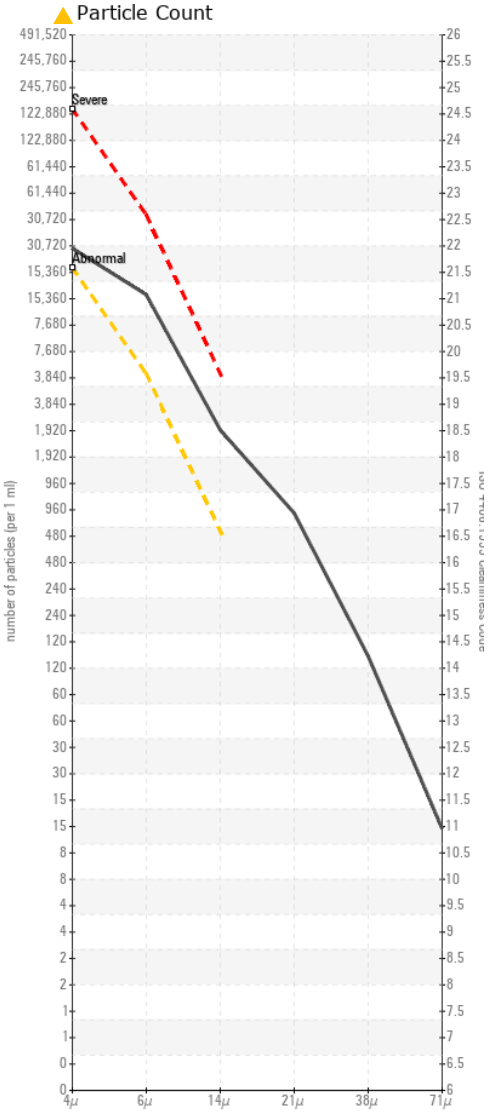
Non-ferrous Metals



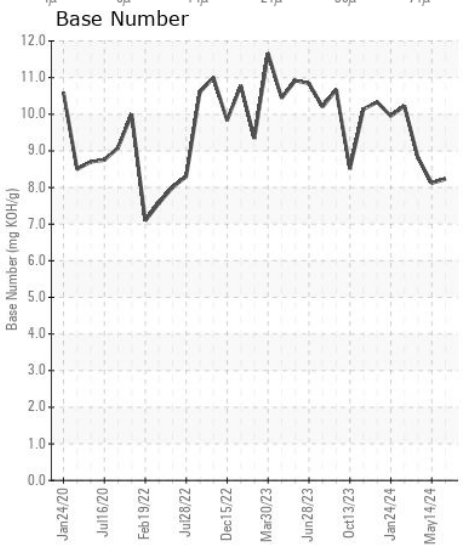
Viscosity @ 100°C



Particle Count



Base Number



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : KL0014442
Lab Number : 06226820
Unique Number : 11110313
Test Package : MOB 2 (Additional Tests: PercentFuel, PrtCount)

Received : 02 Jul 2024
Tested : 03 Jul 2024
Diagnosed : 05 Jul 2024 - Don Baldridge

Certificate L2367

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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