MOB II

TULCO OILS
001 - Tulsa Division

WEAR CHECK

OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	MARGINAL
FLUID CONDITION	ATTENTION

Machine Id
CATERPILLAR 980M 6161 (S/N MK210767)
Component
Diesel Engine
Fluid
TULCO LUBSOIL CK-4 15W40 (--- GAL)

RECOMMENDATION

Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

WEAR

All component wear rates are normal.

CONTAMINATION

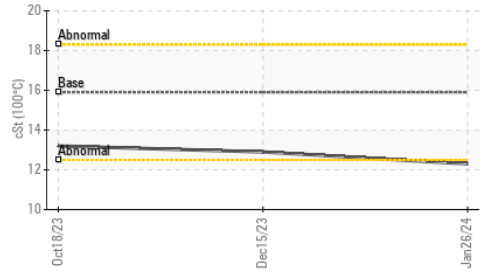
Light fuel dilution occurring.

FLUID CONDITION

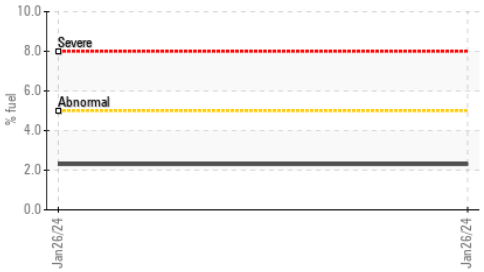
The oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		TO10003034	TO10003048	TO10002799
Sample Date		Client Info		26 Jan 2024	15 Dec 2023	18 Oct 2023
Machine Age	hrs	Client Info		8990	8765	8534
Oil Age	hrs	Client Info		456	231	300
Filter Age	hrs	Client Info		456	231	300
Oil Changed		Client Info		Changed	Not Changd	Changed
Filter Changed		Client Info		Changed	Not Changd	Changed
Sample Status				ATTENTION	NORMAL	NORMAL
Iron	ppm	ASTM D5185m	>100	17	4	0
Chromium	ppm	ASTM D5185m	>20	<1	0	<1
Nickel	ppm	ASTM D5185m	>2	<1	0	0
Titanium	ppm	ASTM D5185m	>2	<1	0	0
Silver	ppm	ASTM D5185m	>2	<1	0	0
Aluminum	ppm	ASTM D5185m	>25	1	<1	<1
Lead	ppm	ASTM D5185m	>40	2	<1	0
Copper	ppm	ASTM D5185m	>330	2	3	<1
Tin	ppm	ASTM D5185m	>15	2	0	0
Vanadium	ppm	ASTM D5185m		<1	<1	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Silicon	ppm	ASTM D5185m	>25	6	3	7
Potassium	ppm	ASTM D5185m	>20	1	<1	1
Fuel	%	ASTM D3524	>5	▲ 2.3	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>3	0.7	0.2	0.1
Nitration	Abs/cm	*ASTM D7624	>20	6.8	8.1	5.0
Sulfation	Abs/.1mm	*ASTM D7415	>30	19.7	20.1	21.2
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		2	14	2
Boron	ppm	ASTM D5185m		11	9	58
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m	65	56	56	39
Manganese	ppm	ASTM D5185m		<1	0	<1
Magnesium	ppm	ASTM D5185m	1060	912	872	492
Calcium	ppm	ASTM D5185m	1140	1015	1074	1516
Phosphorus	ppm	ASTM D5185m	1170	1024	1050	933
Zinc	ppm	ASTM D5185m	1230	1204	1215	1109
Sulfur	ppm	ASTM D5185m	3130	3154	3118	2945
Oxidation	Abs/.1mm	*ASTM D7414	>25	13.9	16.7	18.3
Base Number (BN)	mg KOH/g	ASTM D2896	10.8	9.84	10.39	5.08
Visc @ 40°C	cSt	ASTM D445	118	88.3	95.0	98.8
Visc @ 100°C	cSt	ASTM D445	15.9	▲ 12.3	12.9	13.2
Viscosity Index (VI)	Scale	ASTM D2270	143	134	132	131

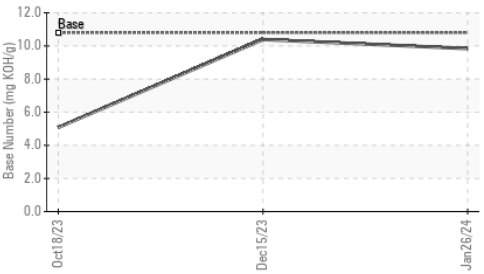
Viscosity @ 100°C



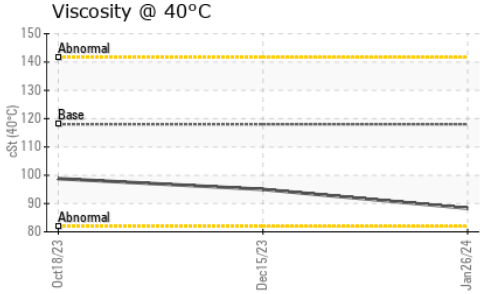
Fuel Dilution



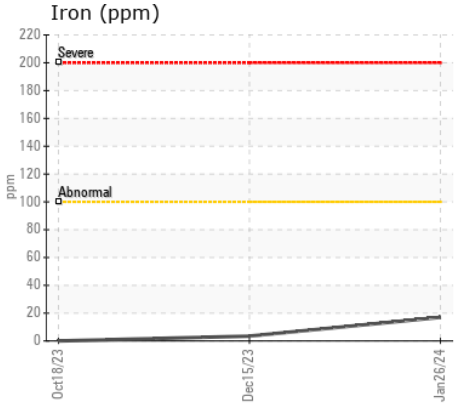
Base Number



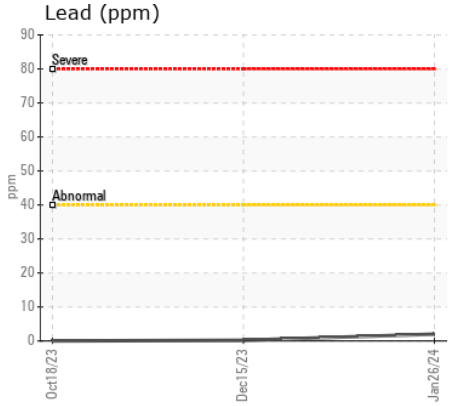
Viscosity @ 40°C



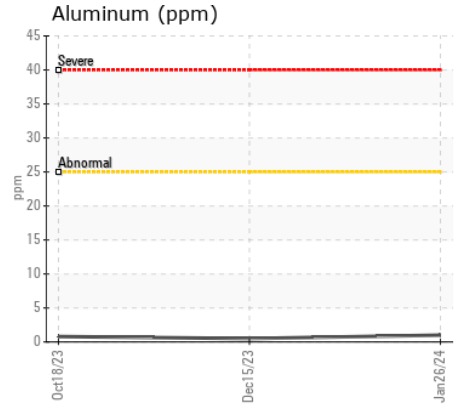
Iron (ppm)



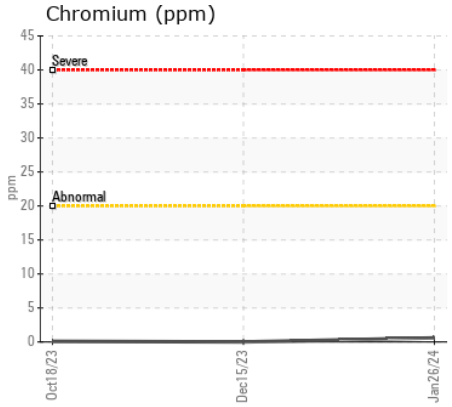
Lead (ppm)



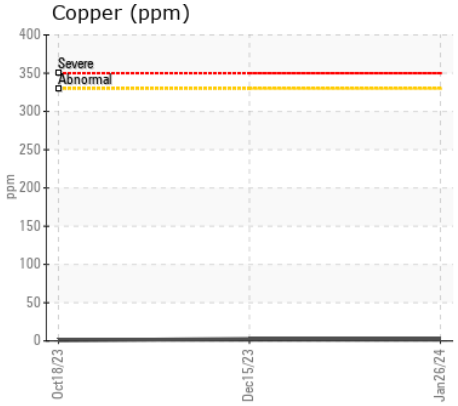
Aluminum (ppm)



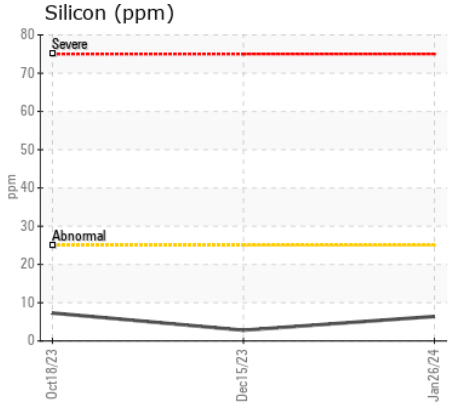
Chromium (ppm)



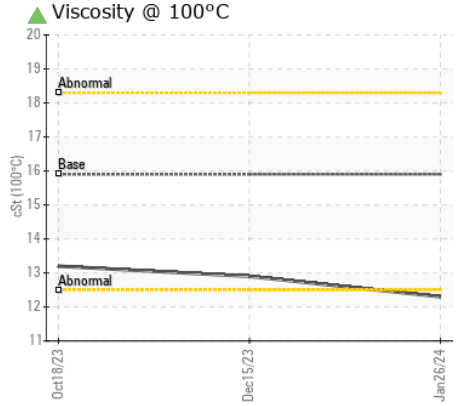
Copper (ppm)



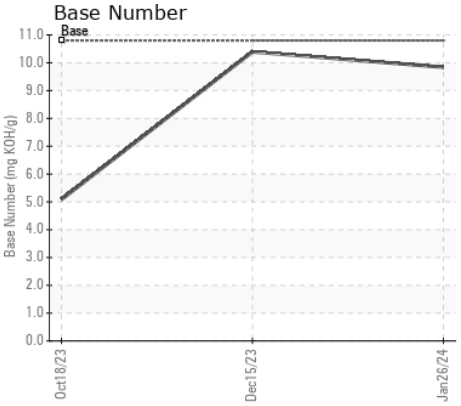
Silicon (ppm)



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : TO10003034 **Received** : 31 Jan 2024
Lab Number : 06076432 **Tested** : 05 Feb 2024
Unique Number : 10858523 **Diagnosed** : 05 Feb 2024 - Jonathan Hester
Test Package : MOB 2 (Additional Tests: FuelDilution, KV40, PercentFuel, VI)

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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Report Id: ANCTUL [WUSCAR] 06076432 (Generated: 02/24/2024 05:47:36) Rev: 1

Submitted By: SKIP SAENGERHAUSEN