MOB II

TULCO OILS
001 - Tulsa Division

WEAR CHECK

OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Area
DE Samples - CAT LAB
Machine Id
CATERPILLAR 336 EXCAVATOR 6853 (S/N RKB01612)
Component
Diesel Engine
Fluid
TULCO LUBSOIL CK-4 15W40 (10 GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

WEAR

All component wear rates are normal.

CONTAMINATION

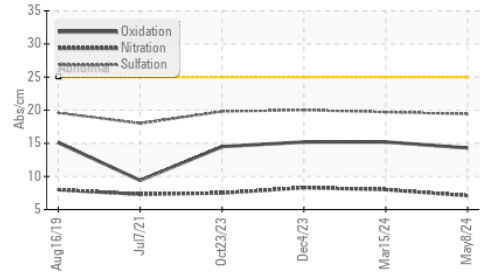
There is no indication of any contamination in the oil.

FLUID CONDITION

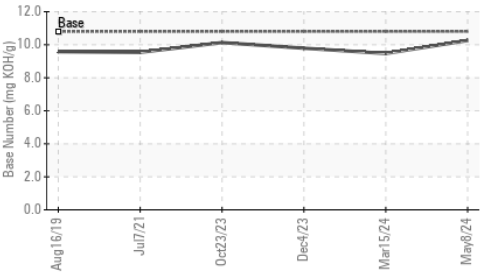
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		TO10002060	TO10003329	TO10002829
Sample Date		Client Info		08 May 2024	15 Mar 2024	04 Dec 2023
Machine Age	hrs	Client Info		12930	12669	12159
Oil Age	hrs	Client Info		261	510	522
Filter Age	hrs	Client Info		261	510	522
Oil Changed		Client Info		Not Changd	Changed	Changed
Filter Changed		Client Info		Not Changd	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
Iron	ppm	ASTM D5185m	>100	3	9	9
Chromium	ppm	ASTM D5185m	>20	<1	1	<1
Nickel	ppm	ASTM D5185m	>2	0	<1	0
Titanium	ppm	ASTM D5185m	>2	0	<1	<1
Silver	ppm	ASTM D5185m	>2	0	<1	0
Aluminum	ppm	ASTM D5185m	>25	2	2	2
Lead	ppm	ASTM D5185m	>40	0	2	<1
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	3	5	4
Potassium	ppm	ASTM D5185m	>20	<1	2	0
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>3	0.3	0.4	0.6
Nitration	Abs/cm	*ASTM D7624	>20	7.1	8.0	8.3
Sulfation	Abs/.1mm	*ASTM D7415	>30	19.4	19.7	20.0
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		1	2	2
Boron	ppm	ASTM D5185m		25	30	29
Barium	ppm	ASTM D5185m		1	1	0
Molybdenum	ppm	ASTM D5185m	65	59	67	63
Manganese	ppm	ASTM D5185m		<1	1	<1
Magnesium	ppm	ASTM D5185m	1060	867	823	859
Calcium	ppm	ASTM D5185m	1140	1107	1192	1199
Phosphorus	ppm	ASTM D5185m	1170	1102	1013	946
Zinc	ppm	ASTM D5185m	1230	1209	1202	1277
Sulfur	ppm	ASTM D5185m	3130	3837	3208	3526
Oxidation	Abs/.1mm	*ASTM D7414	>25	14.3	15.2	15.2
Base Number (BN)	mg KOH/g	ASTM D2896	10.8	10.26	9.47	9.79
Visc @ 40°C	cSt	ASTM D445	118	102	103	102
Visc @ 100°C	cSt	ASTM D445	15.9	13.6	13.6	13.5
Viscosity Index (VI)	Scale	ASTM D2270	143	133	131	131

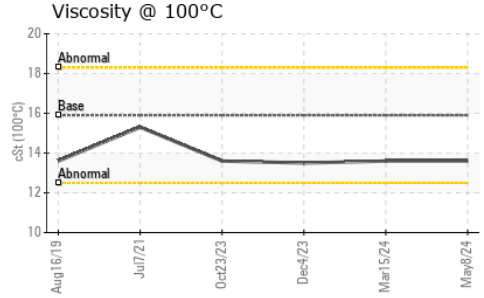
FT-IR (Direct Trend)



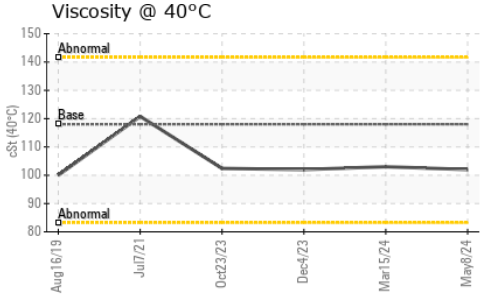
Base Number



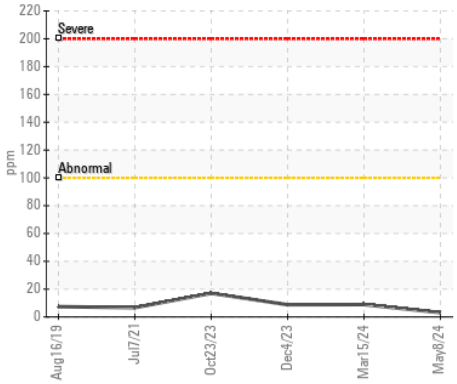
Viscosity @ 100°C



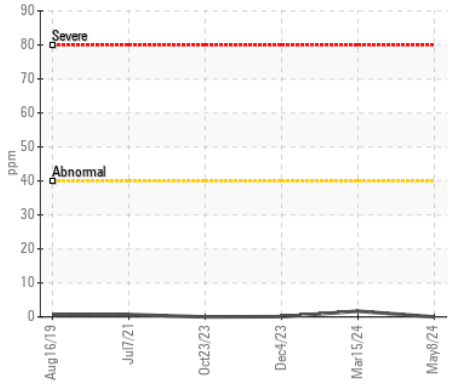
Viscosity @ 40°C



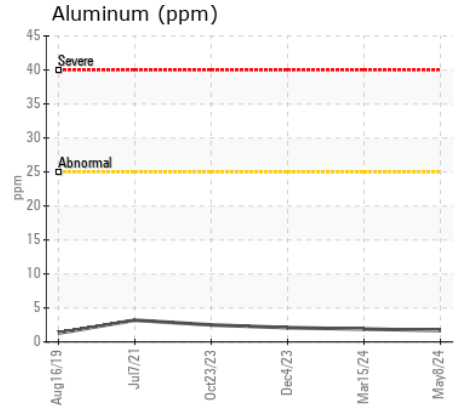
Iron (ppm)



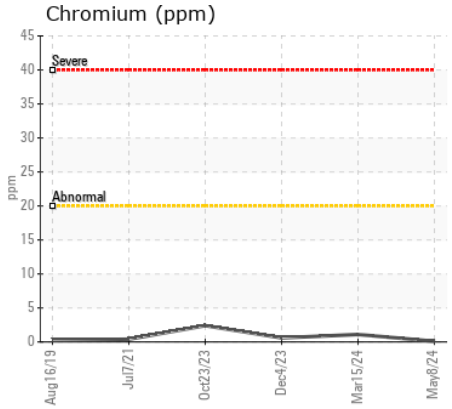
Lead (ppm)



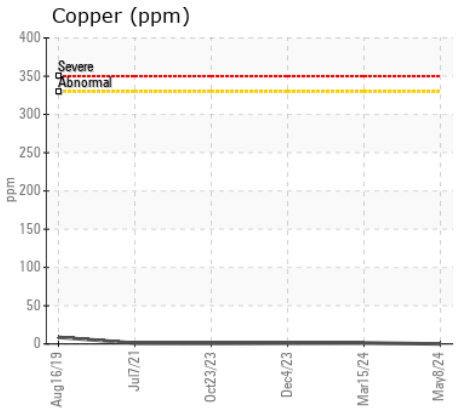
Aluminum (ppm)



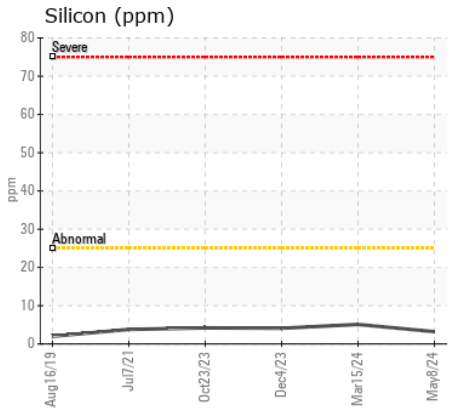
Chromium (ppm)



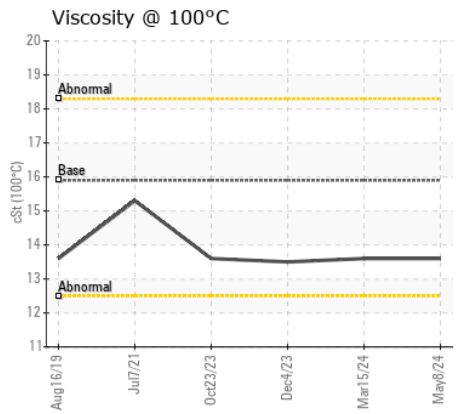
Copper (ppm)



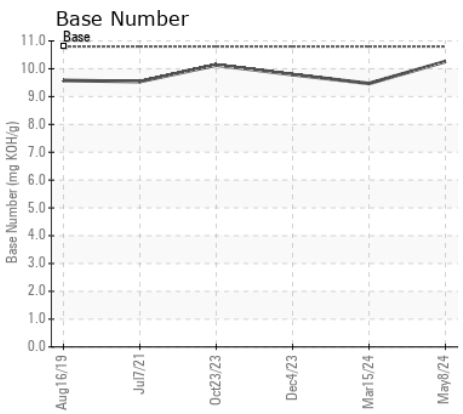
Silicon (ppm)



Viscosity @ 100°C



Base Number



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : TO10002060
Lab Number : 06177872
Unique Number : 11029198
Test Package : MOB 2 (Additional Tests: KV40, VI)

Received : 13 May 2024
Tested : 14 May 2024
Diagnosed : 14 May 2024 - Wes Davis

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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Submitted By: SKIP SAENGERHAUSEN