



OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	ABNORMAL
FLUID CONDITION	NORMAL



Machine Id
CATERPILLAR 345CL EXCAVOTR 6533 (S/N PJW01549)
 Component
Hydraulic System
 Fluid
TULCO LUBSOIL SUPER HYDRAULIC HZ 46 (--- GAL)

RECOMMENDATION

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

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		TO10002206	TO10000173	TO1005509
Sample Date		Client Info		20 Apr 2023	05 May 2021	17 Sep 2019
Machine Age	hrs	Client Info		12468	11948	11175
Oil Age	hrs	Client Info		2520	2000	0
Filter Age	hrs	Client Info		520	500	0
Oil Changed		Client Info		Not Changed	Not Changed	Not Changed
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				ABNORMAL	ABNORMAL	ABNORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>20	8	8	7
Chromium	ppm	ASTM D5185m	>10	0	<1	<1
Nickel	ppm	ASTM D5185m	>10	0	0	0
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m		0	0	<1
Aluminum	ppm	ASTM D5185m	>10	<1	<1	<1
Lead	ppm	ASTM D5185m	>10	0	0	<1
Copper	ppm	ASTM D5185m	>75	1	2	2
Tin	ppm	ASTM D5185m	>10	0	0	0
Vanadium	ppm	ASTM D5185m		0	0	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

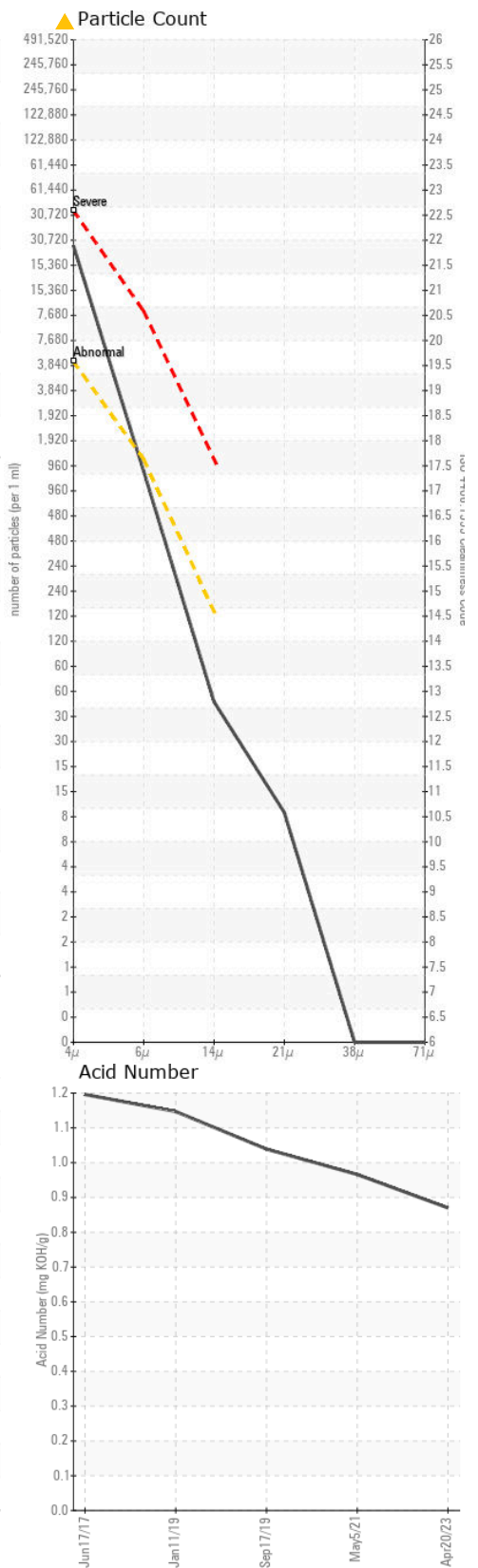
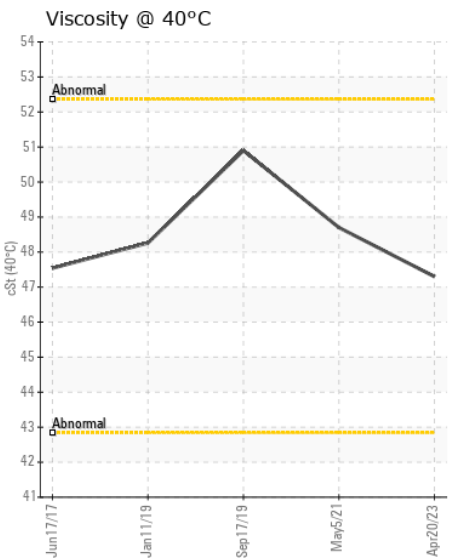
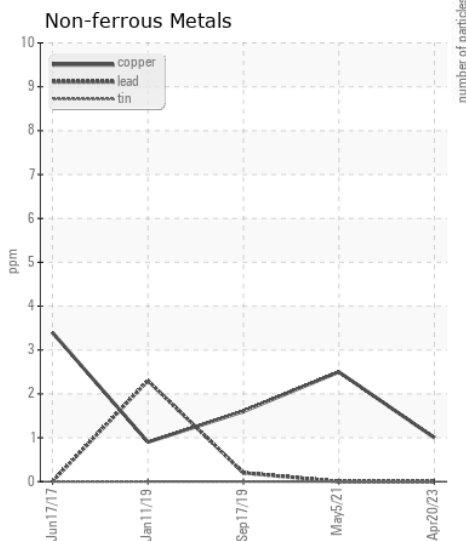
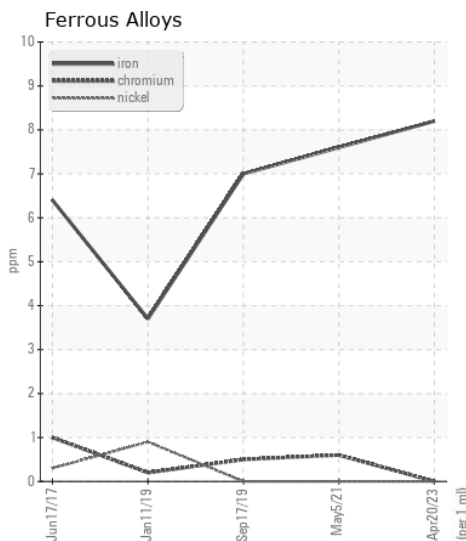
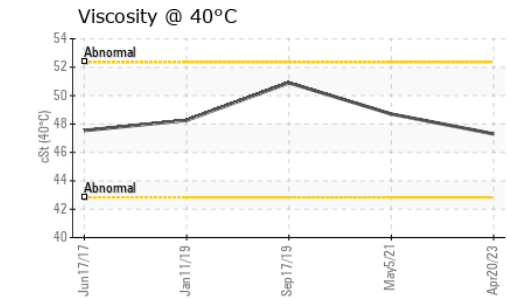
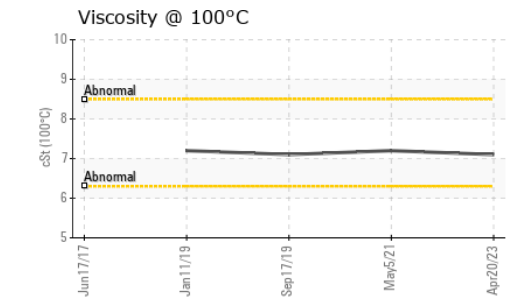
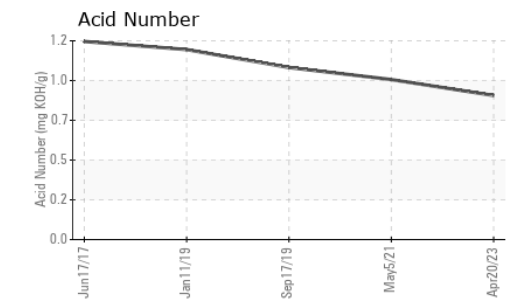
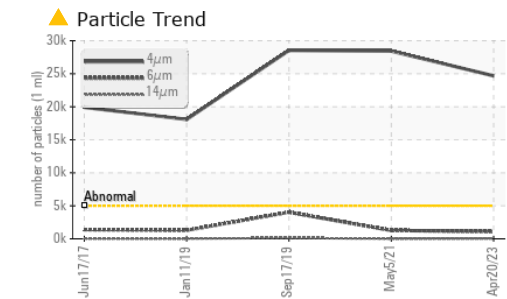
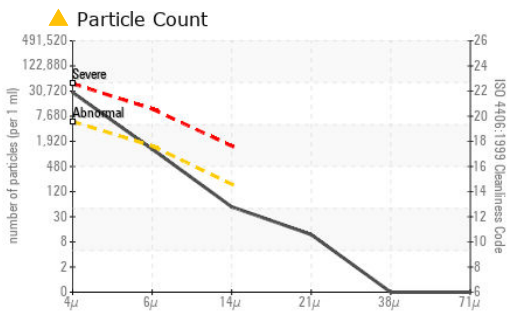
There is a high amount of silt (particulates < 6 microns in size) present in the oil.

Silicon	ppm	ASTM D5185m	>20	<1	1	2
Potassium	ppm	ASTM D5185m	>20	2	3	2
Water	%	ASTM D6304	>0.1	NEG	NEG	0.023
ppm Water	ppm	ASTM D6304	>1000	---	---	226
Particles >4µm		ASTM D7647	>5000	▲ 24677	▲ 28425	▲ 28536
Particles >6µm		ASTM D7647	>1300	1100	1270	▲ 4031
Particles >14µm		ASTM D7647	>160	46	15	128
Particles >21µm		ASTM D7647	>40	10	2	17
Particles >38µm		ASTM D7647	>10	0	0	2
Particles >71µm		ASTM D7647	>3	0	0	2
Oil Cleanliness		ISO 4406 (c)	>19/17/14	▲ 22/17/13	▲ 22/17/11	▲ 22/19/14
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

FLUID CONDITION

The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

Sodium	ppm	ASTM D5185m		2	2	0
Boron	ppm	ASTM D5185m		0	3	<1
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m		0	<1	<1
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m		161	170	192
Calcium	ppm	ASTM D5185m		151	174	181
Phosphorus	ppm	ASTM D5185m		774	693	763
Zinc	ppm	ASTM D5185m		993	863	930
Sulfur	ppm	ASTM D5185m		3375	2403	2631
Acid Number (AN)	mg KOH/g	ASTM D8045		0.87	0.966	1.039
Visc @ 40°C	cSt	ASTM D445		47.3	48.7	50.9
Visc @ 100°C	cSt	ASTM D445		7.1	7.2	7.1
Viscosity Index (VI)	Scale	ASTM D2270		108	106	95



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : TO10002206 **Received** : 24 Apr 2023
Lab Number : 05828392 **Tested** : 27 Apr 2023
Unique Number : 10441885 **Diagnosed** : 27 Apr 2023 - Jonathan Hester
Test Package : MOB 2 (Additional Tests: KF, KV100, VI)

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 TULSA ROCK QUARRY, 66TH ST N 145TH AVENUE
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 US 74137

Contact: MIKE SNYDER
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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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