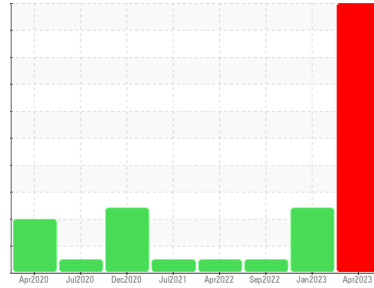


OIL ANALYSIS REPORT



Machine Id
CATERPILLAR 420 FST BACKHOE 6010 (S/N SKR04232)
Component
Front Left Planetary
Fluid
TULCO LUBSOIL TO-4 50 (0 GAL)

Sample Rating Trend



DIAGNOSIS

Recommendation

We advise that you check all areas where dirt can enter the system. We advise that you check for the source of water entry. We recommend that you drain the oil from the component if this has not already been done. We recommend an early resample to monitor this condition.

Wear

Bearing and/or gear wear is indicated.

Contamination

Appearance is milky. Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress. There is a high concentration of water present in the oil.

Fluid Condition

The oil viscosity is lower than normal. Additive levels indicate the addition of a different brand, or type of oil. Confirm oil type. The AN level is acceptable for this fluid. The oil is no longer serviceable due to the presence of contaminants.

SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		TO10002177	TO10001549	TO10001384
Sample Date	Client Info		18 Apr 2023	09 Jan 2023	15 Sep 2022
Machine Age	hrs	Client Info	11802	11286	10795
Oil Age	hrs	Client Info	516	150	1120
Oil Changed	Client Info		Not Chngd	Changed	Changed
Sample Status			SEVERE	ABNORMAL	NORMAL

WEAR METALS

	method	limit/base	current	history1	history2
PQ	ASTM D8184		597	47	43
Iron	ppm	ASTM D5185m >150	1426	96	49
Chromium	ppm	ASTM D5185m >10	13	<1	<1
Nickel	ppm	ASTM D5185m >10	4	0	0
Titanium	ppm	ASTM D5185m	25	1	<1
Silver	ppm	ASTM D5185m	0	0	<1
Aluminum	ppm	ASTM D5185m >25	378	21	4
Lead	ppm	ASTM D5185m >100	5	3	8
Copper	ppm	ASTM D5185m >50	48	4	5
Tin	ppm	ASTM D5185m >10	7	<1	<1
Vanadium	ppm	ASTM D5185m	<1	0	0
Cadmium	ppm	ASTM D5185m	0	0	<1

ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	15	0	4
Barium	ppm	ASTM D5185m	0	0	0
Molybdenum	ppm	ASTM D5185m	<1	0	<1
Manganese	ppm	ASTM D5185m	14	1	1
Magnesium	ppm	ASTM D5185m	363	18	17
Calcium	ppm	ASTM D5185m	10984	3081	3240
Phosphorus	ppm	ASTM D5185m	847	883	701
Zinc	ppm	ASTM D5185m	1055	1171	900
Sulfur	ppm	ASTM D5185m	4655	5062	6120

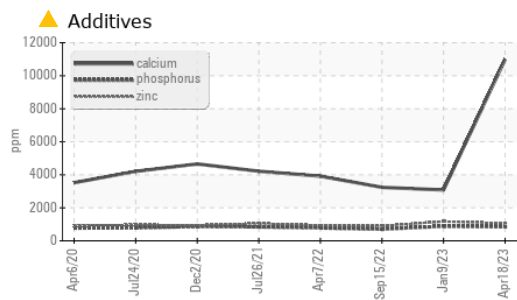
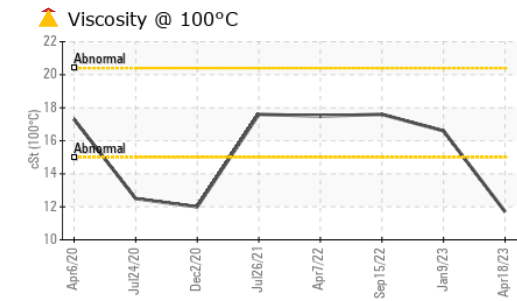
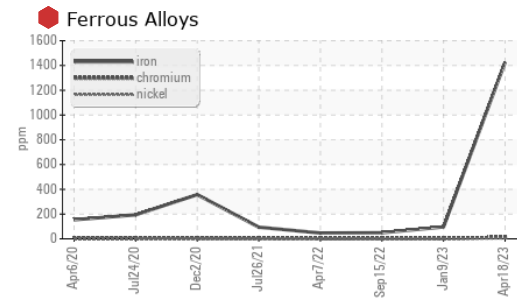
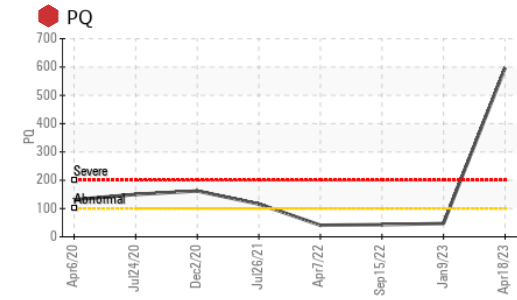
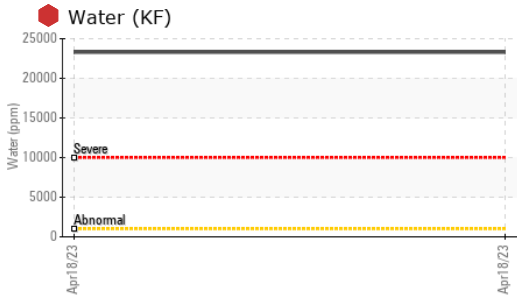
CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >50	1675	91	39
Sodium	ppm	ASTM D5185m	39	4	3
Potassium	ppm	ASTM D5185m >20	142	8	<1
Water	%	ASTM D6304 >0.1	2.33	---	---
ppm Water	ppm	ASTM D6304 >1000	23300	---	---

FLUID DEGRADATION

	method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045	1.10	1.20	0.93

OIL ANALYSIS REPORT

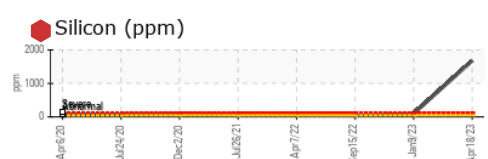
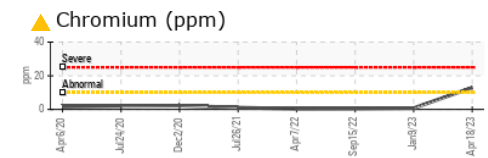
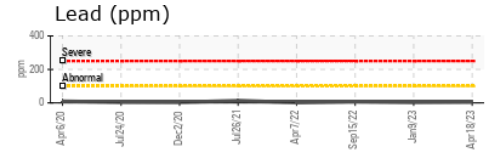
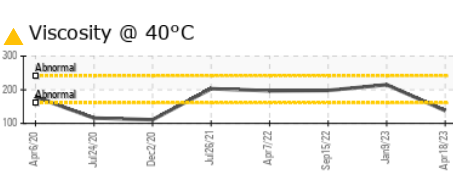
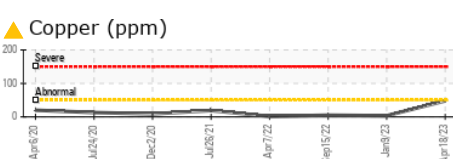
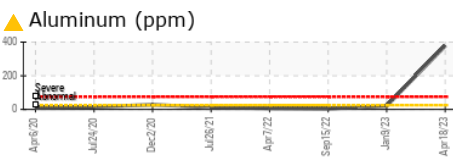
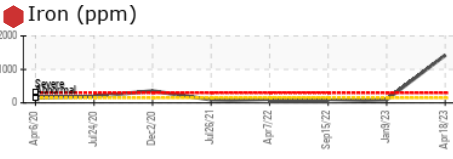


VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	▲ MILKY	NORML
Odor	scalar	*Visual	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.1	◆ 0.2%	NEG
Free Water	scalar	*Visual		◆ NEG	NEG

FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	▲ 138	215	198
Visc @ 100°C	cSt	ASTM D445	▲ 11.7	16.6	17.6
Viscosity Index (VI)	Scale	ASTM D2270	61	77	95

SAMPLE IMAGES	method	limit/base	current	history1	history2
Color				no image	no image
Bottom				no image	no image

GRAPHS



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : TO10002177 **Received** : 24 Apr 2023
Lab Number : 05828502 **Diagnosed** : 27 Apr 2023
Unique Number : 10441995 **Diagnostician** : Jonathan Hester
Test Package : MOB 2 (Additional Tests: KF, KV100, PQ, VI)

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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)