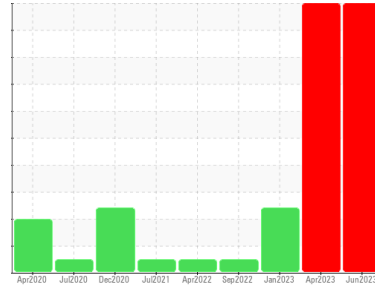


# OIL ANALYSIS REPORT



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. The oil change at the time of sampling has been noted. We recommend an early resample to monitor this condition.
- Wear**  
Gear wear is indicated.
- Contamination**  
Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress.
- Fluid Condition**  
The AN level is acceptable for this fluid.

## SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		<b>TO10002382</b>	TO10002177	TO10001549
Sample Date	Client Info		<b>01 Jun 2023</b>	18 Apr 2023	09 Jan 2023
Machine Age	hrs	Client Info	<b>12039</b>	11802	11286
Oil Age	hrs	Client Info	<b>139</b>	516	150
Oil Changed	Client Info		<b>Changed</b>	Not Changd	Changed
Sample Status			<b>SEVERE</b>	SEVERE	ABNORMAL

## WEAR METALS

	method	limit/base	current	history1	history2
PQ	ASTM D8184		<b>204</b>	597	47
Iron	ppm	ASTM D5185m >150	<b>463</b>	1426	96
Chromium	ppm	ASTM D5185m >10	<b>3</b>	13	<1
Nickel	ppm	ASTM D5185m >10	<b>&lt;1</b>	4	0
Titanium	ppm	ASTM D5185m	<b>11</b>	25	1
Silver	ppm	ASTM D5185m	<b>&lt;1</b>	0	0
Aluminum	ppm	ASTM D5185m >25	<b>189</b>	378	21
Lead	ppm	ASTM D5185m >100	<b>5</b>	5	3
Copper	ppm	ASTM D5185m >50	<b>9</b>	48	4
Tin	ppm	ASTM D5185m >10	<b>3</b>	7	<1
Vanadium	ppm	ASTM D5185m	<b>&lt;1</b>	<1	0
Cadmium	ppm	ASTM D5185m	<b>&lt;1</b>	0	0

## ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	<b>1</b>	15	0
Barium	ppm	ASTM D5185m	<b>3</b>	0	0
Molybdenum	ppm	ASTM D5185m	<b>&lt;1</b>	<1	0
Manganese	ppm	ASTM D5185m	<b>5</b>	14	1
Magnesium	ppm	ASTM D5185m	<b>118</b>	363	18
Calcium	ppm	ASTM D5185m	<b>5825</b>	10984	3081
Phosphorus	ppm	ASTM D5185m	<b>978</b>	847	883
Zinc	ppm	ASTM D5185m	<b>1218</b>	1055	1171
Sulfur	ppm	ASTM D5185m	<b>6021</b>	4655	5062

## CONTAMINANTS

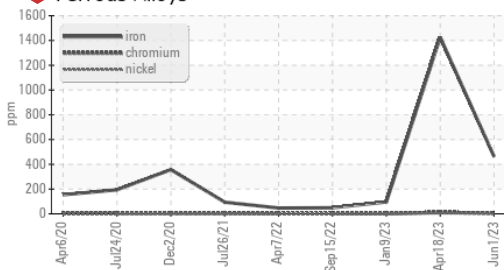
	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >50	<b>665</b>	1675	91
Sodium	ppm	ASTM D5185m	<b>15</b>	39	4
Potassium	ppm	ASTM D5185m >20	<b>71</b>	142	8
Water	%	ASTM D6304 >0.1	<b>NEG</b>	2.33	NEG
ppm Water	ppm	ASTM D6304 >1000	<b>---</b>	23300	---

## FLUID DEGRADATION

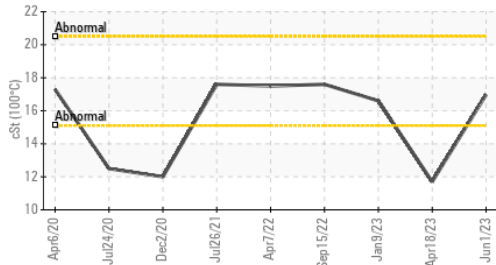
	method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045	<b>1.56</b>	1.10	1.20

# OIL ANALYSIS REPORT

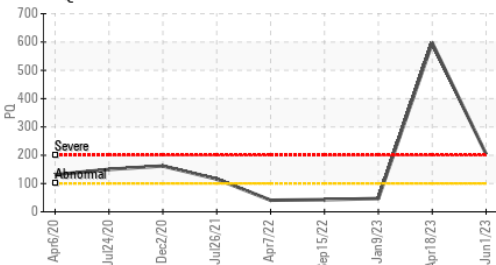
## Ferrous Alloys



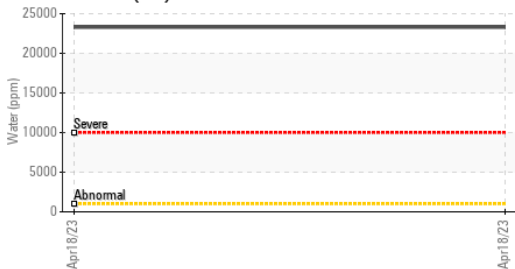
## Viscosity @ 100°C



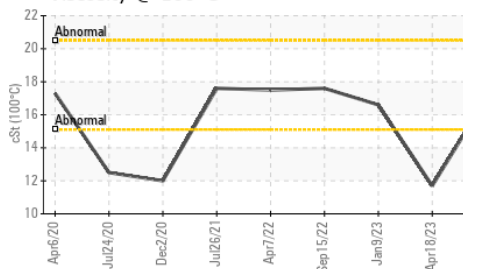
## PQ



## Water (KF)



## Viscosity @ 100°C



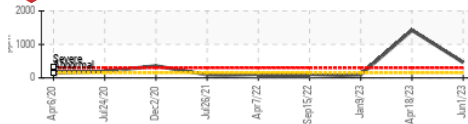
VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance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

FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	195	▲ 138	215
Visc @ 100°C	cSt	ASTM D445	16.97	▲ 11.7	16.6
Viscosity Index (VI)	Scale	ASTM D2270	91	61	77

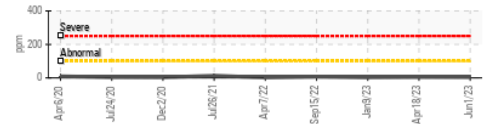
SAMPLE IMAGES	method	limit/base	current	history1	history2
Color				no image	no image
Bottom				no image	no image

## GRAPHS

### Iron (ppm)



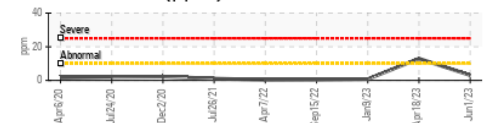
### Lead (ppm)



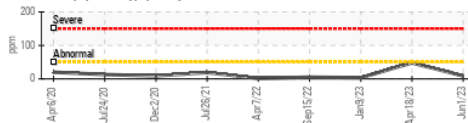
### Aluminum (ppm)



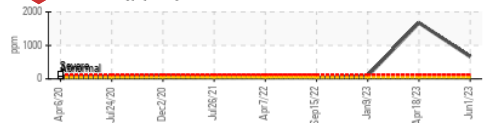
### Chromium (ppm)



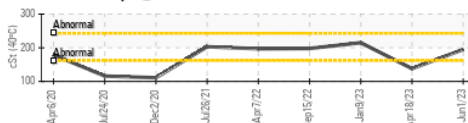
### Copper (ppm)



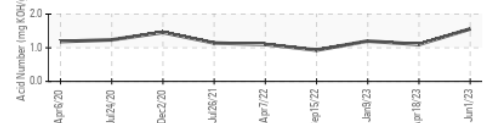
### Silicon (ppm)



### Viscosity @ 40°C



### Acid Number



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : TO10002382 **Received** : 05 Jun 2023  
**Lab Number** : 05865221 **Diagnosed** : 16 Jun 2023  
**Unique Number** : 10499686 **Diagnostician** : Doug Bogart  
**Test Package** : MOB 2 ( Additional Tests: KF, KV100, PQ, 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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