

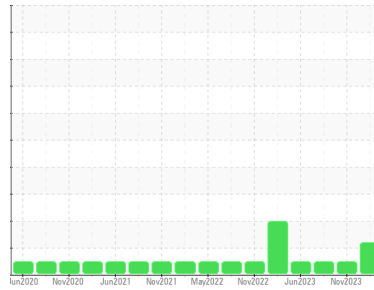
# OIL ANALYSIS REPORT

Sample Rating Trend

ISO



Machine Id  
**CATERPILLAR 990K 6088 (S/N A9P00362)**  
Component  
**Steering**  
Fluid  
**TULCO LUBSOIL SUPER HYDRAULIC HZ 46 (35 GAL)**



## DIAGNOSIS

### 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.

### Wear

All component wear rates are normal.

### Contamination

There is a moderate amount of silt (particulates < 14 microns in size) present in the fluid.

### Fluid Condition

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

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number	Client Info			<b>TO10003019</b>	TO10002893	TO10002436
Sample Date	Client Info			<b>22 Mar 2024</b>	06 Nov 2023	22 Aug 2023
Machine Age	hrs	Client Info		<b>15413</b>	14829	14321
Oil Age	hrs	Client Info		<b>5675</b>	5091	4583
Oil Changed	Client Info			<b>Not Chngd</b>	Not Chngd	Not Chngd
Sample Status				<b>ATTENTION</b>	NORMAL	NORMAL

CONTAMINATION		method	limit/base	current	history1	history2
Water	WC Method			<b>NEG</b>	NEG	NEG

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>60	<b>4</b>	3	4
Chromium	ppm	ASTM D5185m	>12	<b>0</b>	0	0
Nickel	ppm	ASTM D5185m	>6	<b>0</b>	0	0
Titanium	ppm	ASTM D5185m		<b>0</b>	0	0
Silver	ppm	ASTM D5185m		<b>0</b>	<1	0
Aluminum	ppm	ASTM D5185m	>4	<b>2</b>	3	2
Lead	ppm	ASTM D5185m	>12	<b>3</b>	4	3
Copper	ppm	ASTM D5185m	>30	<b>3</b>	2	4
Tin	ppm	ASTM D5185m		<b>0</b>	<1	0
Vanadium	ppm	ASTM D5185m		<b>0</b>	0	<1
Cadmium	ppm	ASTM D5185m		<b>0</b>	0	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		<b>40</b>	42	51
Barium	ppm	ASTM D5185m		<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185m		<b>5</b>	6	7
Manganese	ppm	ASTM D5185m		<b>0</b>	<1	0
Magnesium	ppm	ASTM D5185m		<b>67</b>	66	46
Calcium	ppm	ASTM D5185m		<b>1069</b>	994	1236
Phosphorus	ppm	ASTM D5185m		<b>720</b>	728	724
Zinc	ppm	ASTM D5185m		<b>857</b>	877	913
Sulfur	ppm	ASTM D5185m		<b>3077</b>	2646	3282

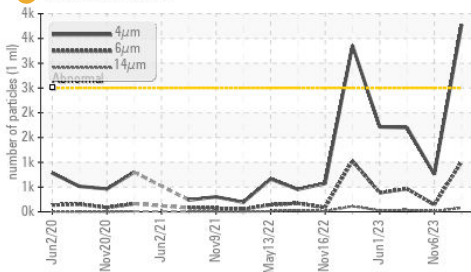
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>10	<b>6</b>	7	7
Sodium	ppm	ASTM D5185m		<b>5</b>	4	5
Potassium	ppm	ASTM D5185m	>20	<b>&lt;1</b>	3	2

FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647	>2500	<b>3776</b>	757	1699
Particles >6µm		ASTM D7647	>640	<b>1009</b>	142	466
Particles >14µm		ASTM D7647	>80	<b>80</b>	11	37
Particles >21µm		ASTM D7647	>20	<b>17</b>	4	9
Particles >38µm		ASTM D7647	>4	<b>0</b>	0	0
Particles >71µm		ASTM D7647	>3	<b>0</b>	0	0
Oil Cleanliness		ISO 4406 (c)	>18/16/13	<b>19/17/13</b>	17/14/11	18/16/12

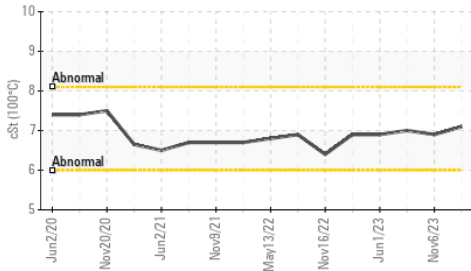
FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045		<b>0.96</b>	0.89	1.13

# OIL ANALYSIS REPORT

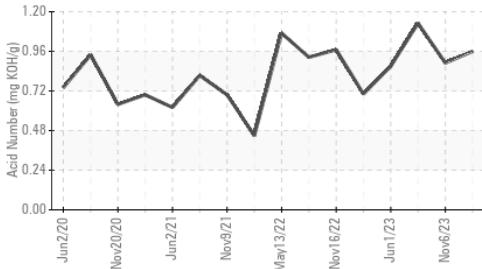
## Particle Trend



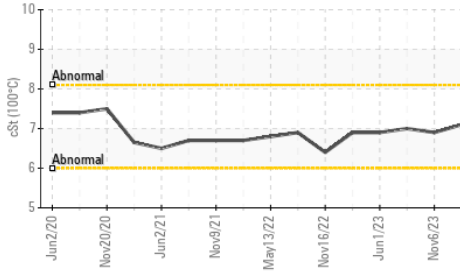
## Viscosity @ 100°C



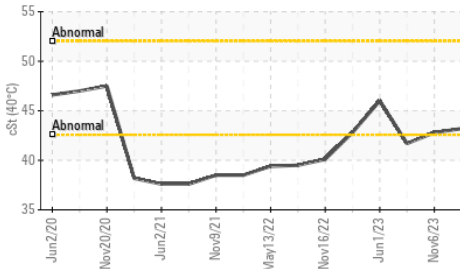
## Acid Number



## Viscosity @ 100°C



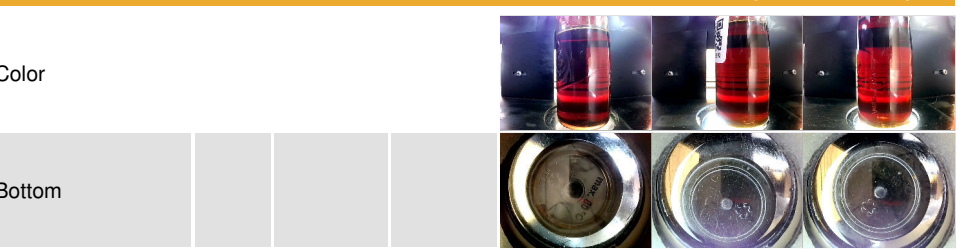
## Viscosity @ 40°C



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	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	NEG	NEG	NEG
Free Water	scalar	*Visual	NEG	NEG	NEG

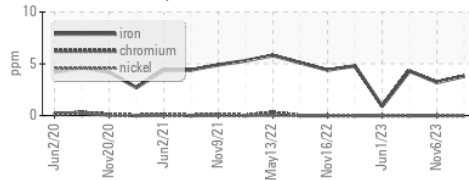
FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	43.2	42.8	41.7
Visc @ 100°C	cSt	ASTM D445	7.1	6.9	7
Viscosity Index (VI)	Scale	ASTM D2270	124	118	127

## SAMPLE IMAGES

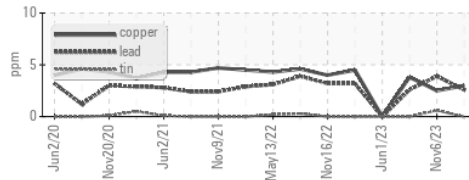


## GRAPHS

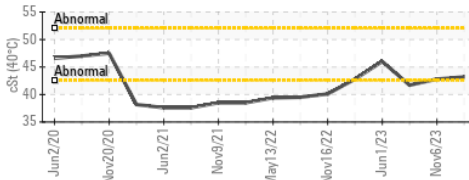
### Ferrous Alloys



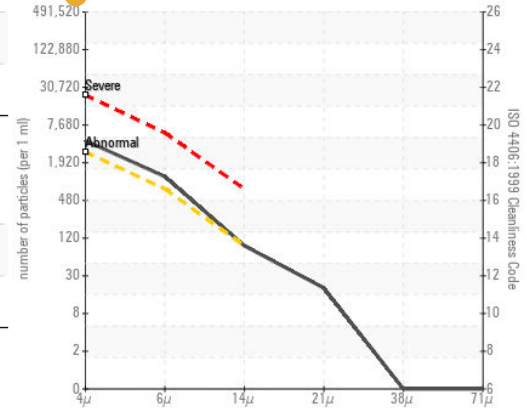
### Non-ferrous Metals



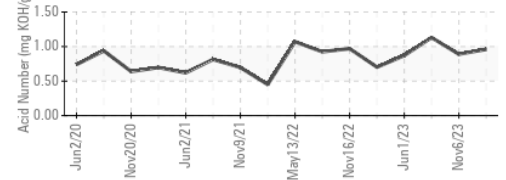
### Viscosity @ 40°C



### Particle Count



### Acid Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513

Sample No. : TO10003019

Lab Number : 06133981

Unique Number : 10953446

Test Package : MOB 2 ( Additional Tests: KV100, PrtCount, VI )

Received : 29 Mar 2024

Tested : 01 Apr 2024

Diagnosed : 03 Apr 2024 - Don Baldrige

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)

**ANCHOR STONE TULSA ROCK**

TULSA ROCK QUARRY, 66TH ST N 145TH AVENUE

TULSA, OK

US 74137

Contact: MIKE SNYDER

msnyder@anchorstoneco.com

T: (417)850-9635

F: