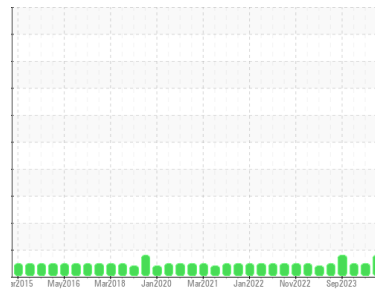


OIL ANALYSIS REPORT



Area
DE Samples - CAT LAB
 Machine Id
CATERPILLAR 980K LOADER 6775 (S/N W7K01443)
 Component
Hydraulic System
 Fluid
TULCO LUBSOIL SUPER HYDRAULIC HZ 46 (--- GAL)

Sample Rating Trend



ISO



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 oil.

Fluid Condition

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

SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		TO10003081	TO10003112	TO10002811
Sample Date	Client Info		04 May 2024	22 Feb 2024	04 Dec 2023
Machine Age	hrs	Client Info	28486	27973	27433
Oil Age	hrs	Client Info	502	5652	5112
Oil Changed	Client Info		Not Chngd	Not Chngd	Not Chngd
Sample Status			ATTENTION	NORMAL	NORMAL

WEAR METALS

	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m >20	0	0	0
Chromium	ppm	ASTM D5185m >10	0	0	0
Nickel	ppm	ASTM D5185m >10	0	0	0
Titanium	ppm	ASTM D5185m	0	0	0
Silver	ppm	ASTM D5185m	0	0	0
Aluminum	ppm	ASTM D5185m >10	<1	0	0
Lead	ppm	ASTM D5185m >10	0	0	0
Copper	ppm	ASTM D5185m >75	0	<1	2
Tin	ppm	ASTM D5185m >10	0	0	0
Vanadium	ppm	ASTM D5185m	0	0	0
Cadmium	ppm	ASTM D5185m	0	0	0

ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	0	0
Barium	ppm	ASTM D5185m	0	0	0
Molybdenum	ppm	ASTM D5185m	0	0	0
Manganese	ppm	ASTM D5185m	0	<1	<1
Magnesium	ppm	ASTM D5185m	211	213	209
Calcium	ppm	ASTM D5185m	196	206	192
Phosphorus	ppm	ASTM D5185m	741	748	722
Zinc	ppm	ASTM D5185m	900	931	897
Sulfur	ppm	ASTM D5185m	3272	2725	2728

CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >20	1	1	<1
Sodium	ppm	ASTM D5185m	4	4	4
Potassium	ppm	ASTM D5185m >20	1	<1	0
Water	%	ASTM D6304 >0.1	NEG	NEG	NEG

FLUID CLEANLINESS

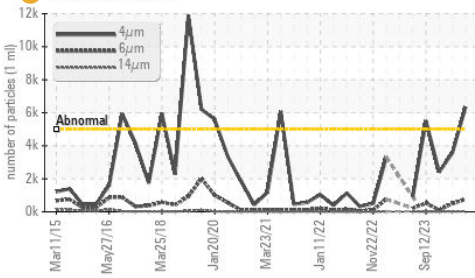
	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647	>5000	6345	3575	2413
Particles >6µm	ASTM D7647	>1300	760	506	110
Particles >14µm	ASTM D7647	>160	35	19	12
Particles >21µm	ASTM D7647	>40	11	3	4
Particles >38µm	ASTM D7647	>10	1	0	0
Particles >71µm	ASTM D7647	>3	0	0	0
Oil Cleanliness	ISO 4406 (c)	>19/17/14	20/17/12	19/16/11	18/14/11

FLUID DEGRADATION

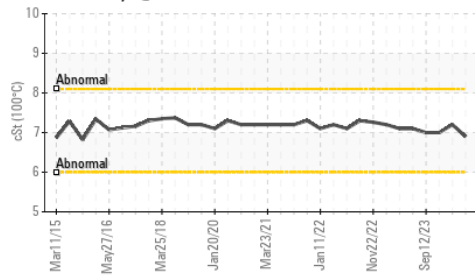
	method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045	0.82	0.55	0.46

OIL ANALYSIS REPORT

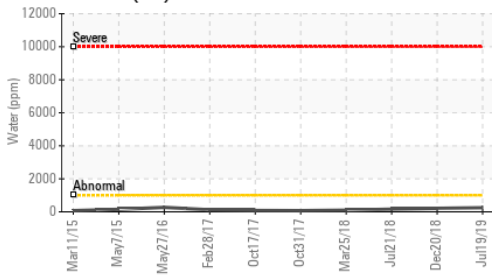
Particle Trend



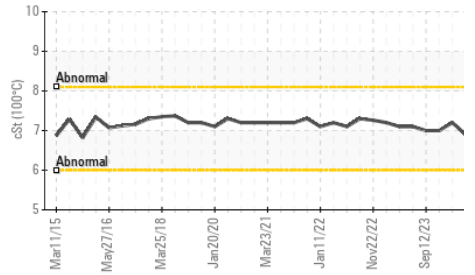
Viscosity @ 100°C



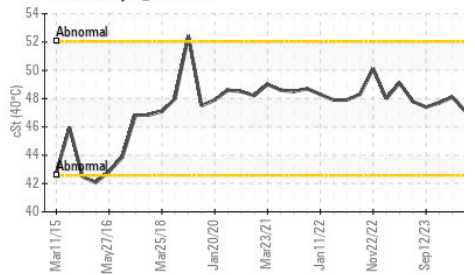
Water (KF)



Viscosity @ 100°C



Viscosity @ 40°C



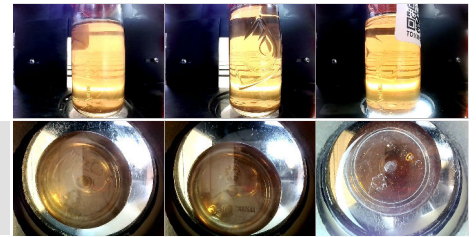
VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance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

FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	47.1	48.1	47.7
Visc @ 100°C	cSt	ASTM D445	6.9	7.2	7
Viscosity Index (VI)	Scale	ASTM D2270	101	108	103

SAMPLE IMAGES	method	limit/base	current	history1	history2
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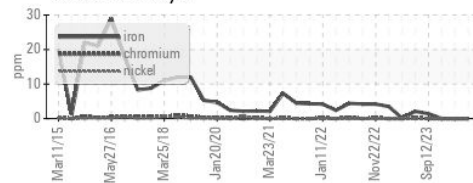
Color

Bottom

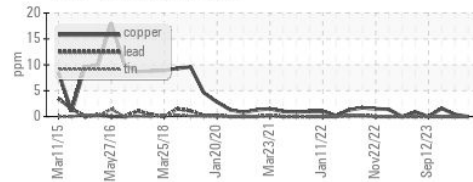


GRAPHS

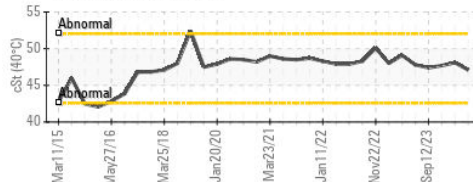
Ferrous Alloys



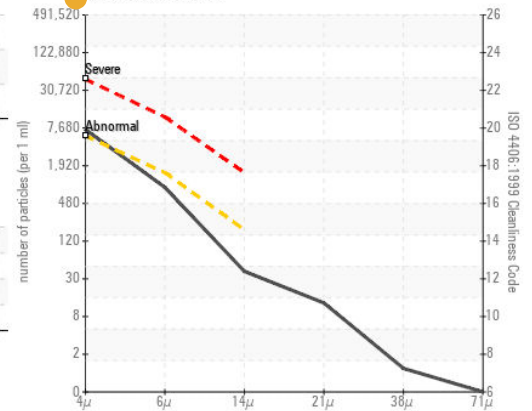
Non-ferrous Metals



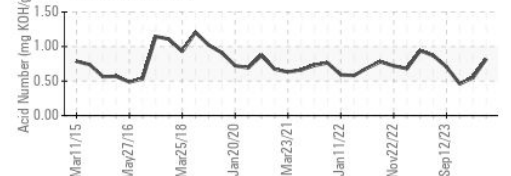
Viscosity @ 40°C



Particle Count



Acid Number



Certificate L2367

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

Sample No. : TO10003081

Lab Number : 06176074

Unique Number : 11022127

Test Package : MOB 2 (Additional Tests: KF, KV100, 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)

Received : 10 May 2024

Tested : 14 May 2024

Diagnosed : 14 May 2024 - Don Baldrige

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: