OIL ANALYSIS REPORT

Sample Rating Trend

WEAR

Machine Id
CATERPILLAR Caterpillar 980 (S/N WFX01470)
Component
Diesel Engine
Fluid
TULCO LUBSOIL CK-4 15W40 (--- GAL)

DIAGNOSIS

Recommendation
No corrective action is recommended at this time. Resample at the next service interval to monitor.

Wear
The copper level is abnormal. In the absence of other significant wear metals, suspect copper due to sources other than wear (i.e. cooling core). All other metal levels are typical for a new component breaking in.

Contamination
Light fuel dilution occurring.

Fluid Condition
The oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**TO10003612**	---	---
Sample Date		Client Info		**13 Jun 2024**	---	---
Machine Age	hrs	Client Info		**271**	---	---
Oil Age	hrs	Client Info		**271**	---	---
Oil Changed		Client Info		**Not Changd**	---	---
Sample Status				**ABNORMAL**	---	---

CONTAMINATION		method	limit/base	current	history1	history2
Water		WC Method	>0.2	**NEG**	---	---
Glycol		WC Method		**NEG**	---	---

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	**17**	---	---
Chromium	ppm	ASTM D5185m	>20	**0**	---	---
Nickel	ppm	ASTM D5185m	>2	**0**	---	---
Titanium	ppm	ASTM D5185m	>2	**0**	---	---
Silver	ppm	ASTM D5185m	>2	**<1**	---	---
Aluminum	ppm	ASTM D5185m	>25	**2**	---	---
Lead	ppm	ASTM D5185m	>40	**11**	---	---
Copper	ppm	ASTM D5185m	>330	▲ **706**	---	---
Tin	ppm	ASTM D5185m	>15	**2**	---	---
Vanadium	ppm	ASTM D5185m		**0**	---	---
Cadmium	ppm	ASTM D5185m		**0**	---	---

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		**35**	---	---
Barium	ppm	ASTM D5185m		**2**	---	---
Molybdenum	ppm	ASTM D5185m	65	**43**	---	---
Manganese	ppm	ASTM D5185m		**3**	---	---
Magnesium	ppm	ASTM D5185m	1060	**637**	---	---
Calcium	ppm	ASTM D5185m	1140	**1755**	---	---
Phosphorus	ppm	ASTM D5185m	1170	**965**	---	---
Zinc	ppm	ASTM D5185m	1230	**1153**	---	---
Sulfur	ppm	ASTM D5185m	3130	**3550**	---	---

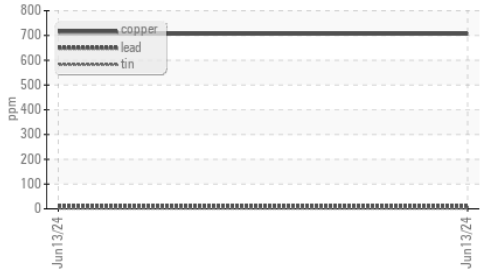
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>25	**62**	---	---
Sodium	ppm	ASTM D5185m		**3**	---	---
Potassium	ppm	ASTM D5185m	>20	**0**	---	---
Fuel	%	ASTM D3524	>5	▲ **2.2**	---	---

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>3	**0.2**	---	---
Nitration	Abs/cm	*ASTM D7624	>20	**8.9**	---	---
Sulfation	Abs/.1mm	*ASTM D7415	>30	**22.5**	---	---

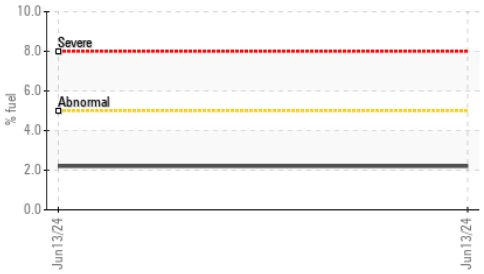
FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	**20.7**	---	---
Base Number (BN)	mg KOH/g	ASTM D2896	10.8	**9.44**	---	---

OIL ANALYSIS REPORT

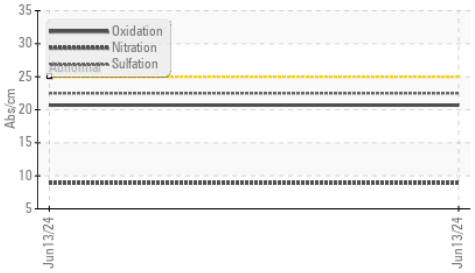
Non-ferrous Metals



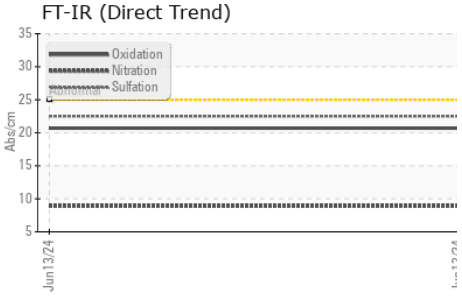
Fuel Dilution



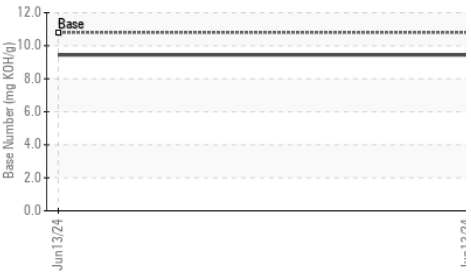
FT-IR (Direct Trend)



FT-IR (Direct Trend)



Base Number

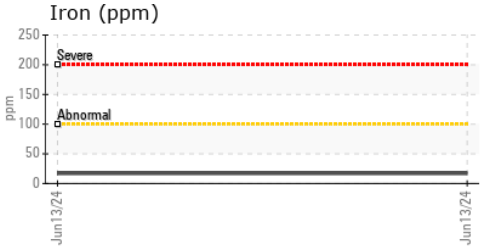


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**LIGHT**	---	---
Yellow Metal	scalar	*Visual	NONE	**NONE**	---	---
Precipitate	scalar	*Visual	NONE	**NONE**	---	---
Silt	scalar	*Visual	NONE	**NONE**	---	---
Debris	scalar	*Visual	NONE	**NONE**	---	---
Sand/Dirt	scalar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

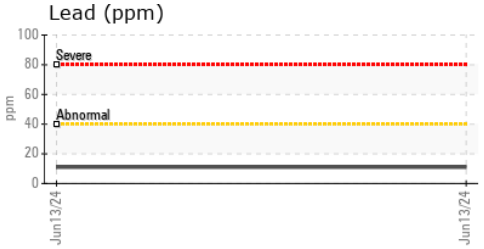
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.9	**10.7**	---	---
Viscosity Index (VI)	Scale	ASTM D2270	143	**145**	---	---

GRAPHS

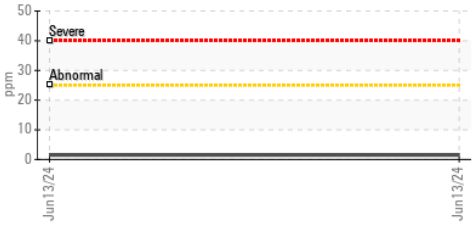
Iron (ppm)



Lead (ppm)



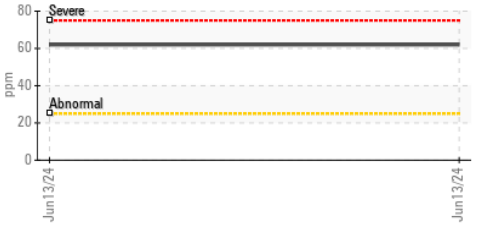
Aluminum (ppm)



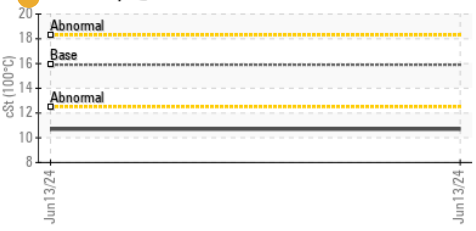
Chromium (ppm)

Copper (ppm)

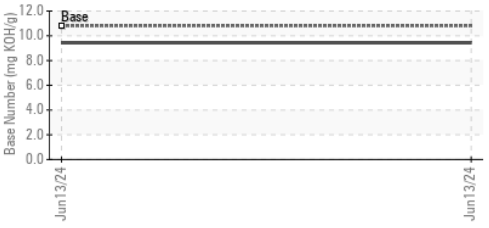
Silicon (ppm)



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : TO10003612
Lab Number : 06213661
Unique Number : 11086525
Test Package : MOB 2 (Additional Tests: FuelDilution, PercentFuel, VI)

Received : 18 Jun 2024
Tested : 20 Jun 2024
Diagnosed : 21 Jun 2024 - Jonathan Hester

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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Report Id: ANCTUL [WUSCAR] 06213661 (Generated: 06/21/2024 14:35:48) Rev: 1

Submitted By: SKIP SAENGERHAUSEN