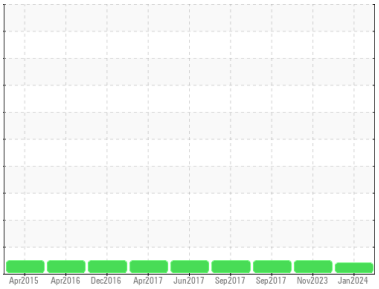
OIL ANALYSIS REPORT

Area
DE Samples - CAT LAB
Machine Id
CATERPILLAR 990 LOADER G 6427 (S/N BCR00127)
Component
Diesel Engine
Fluid
TULCO LUBSOIL DT CI-4 15W40 (--- GAL)

Sample Rating Trend



VISCOSITY

DIAGNOSIS

Recommendation

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

Wear

All component wear rates are normal.

Contamination

Fuel content negligible. There is no indication of any contamination in the oil.

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		**TO10003073**	TO10002879	TO1006276
Sample Date		Client Info		**08 Jan 2024**	13 Nov 2023	29 Sep 2017
Machine Age	hrs	Client Info		**48390**	48135	37588
Oil Age	hrs	Client Info		**255**	586	0
Oil Changed		Client Info		**Not Changd**	Changed	Changed
Sample Status				**ATTENTION**	NORMAL	NORMAL

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

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	**15**	58	8
Chromium	ppm	ASTM D5185m	>20	**0**	<1	<1
Nickel	ppm	ASTM D5185m	>2	**0**	0	0
Titanium	ppm	ASTM D5185m	>2	**0**	0	0
Silver	ppm	ASTM D5185m	>2	**0**	0	0
Aluminum	ppm	ASTM D5185m	>25	**1**	1	<1
Lead	ppm	ASTM D5185m	>40	**0**	0	0
Copper	ppm	ASTM D5185m	>330	**2**	1	<1
Tin	ppm	ASTM D5185m	>15	**0**	0	7
Antimony	ppm	ASTM D5185m		**---**	---	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		**4**	14	15
Barium	ppm	ASTM D5185m		**0**	0	0
Molybdenum	ppm	ASTM D5185m		**65**	63	64
Manganese	ppm	ASTM D5185m		**<1**	<1	<1
Magnesium	ppm	ASTM D5185m		**967**	935	939
Calcium	ppm	ASTM D5185m		**1133**	1158	1073
Phosphorus	ppm	ASTM D5185m		**1113**	1079	1007
Zinc	ppm	ASTM D5185m		**1322**	1294	1203
Sulfur	ppm	ASTM D5185m		**3405**	3170	3160

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>25	**2**	3	2
Sodium	ppm	ASTM D5185m		**0**	2	2
Potassium	ppm	ASTM D5185m	>20	**0**	0	<1
Fuel	%	ASTM D3524	>5	**0.1**	<1.0	<1.0

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>3	**0.3**	0.9	0.3
Nitration	Abs/cm	*ASTM D7624	>20	**6.3**	8.0	5.
Sulfation	Abs/.1mm	*ASTM D7415	>30	**19.1**	21.3	17.

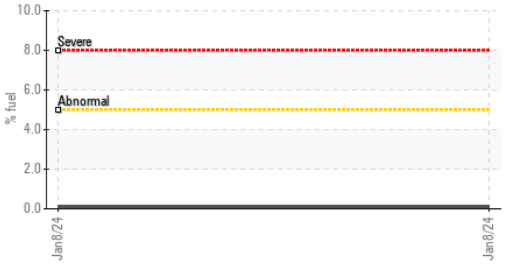
FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	**14.2**	15.6	11.
Base Number (BN)	mg KOH/g	ASTM D2896		**10.24**	9.45	9.67

Report Id: ANCTUL [WUSCAR] 06061377 (Generated: 01/19/2024 12:21:44) Rev: 1

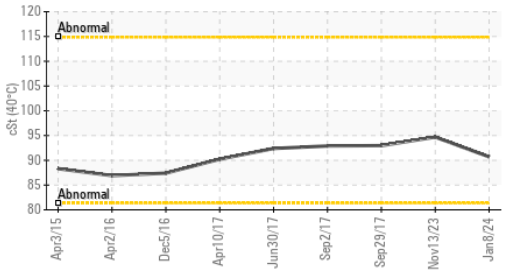
Submitted By: SKIP SAENGERHAUSEN

OIL ANALYSIS REPORT

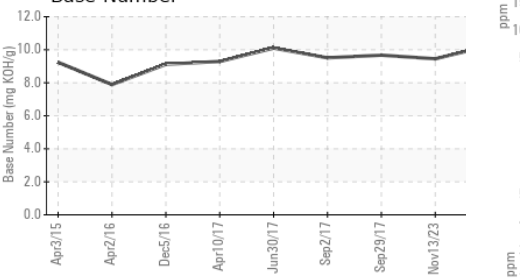
Fuel Dilution



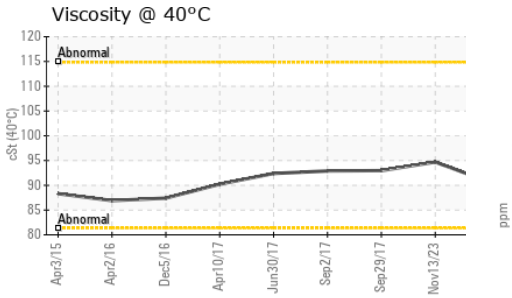
Viscosity @ 40°C



Base Number



Viscosity @ 40°C

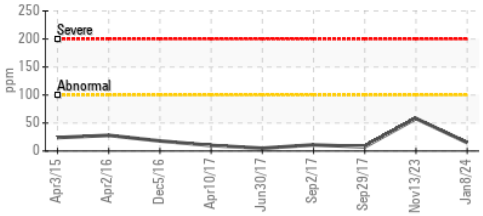


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	NONE	NONE
Sand/Dirt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

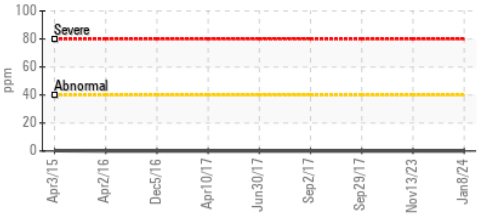
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445		**90.7**	94.7	92.96
Visc @ 100°C	cSt	ASTM D445		▲ **12.2**	12.6	12.91
Viscosity Index (VI)	Scale	ASTM D2270		**128**	128	136

GRAPHS

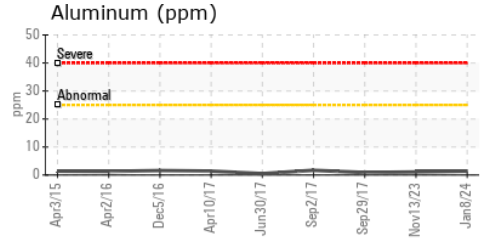
Iron (ppm)



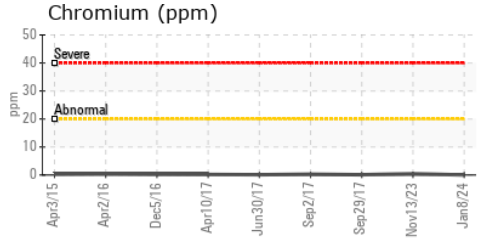
Lead (ppm)



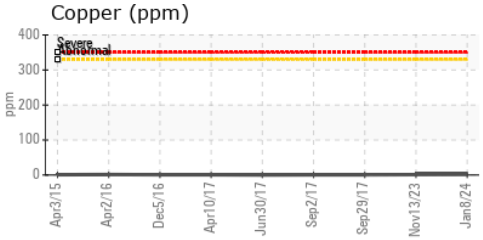
Aluminum (ppm)



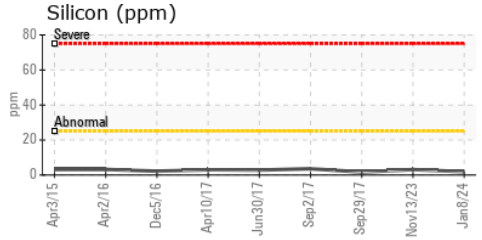
Chromium (ppm)



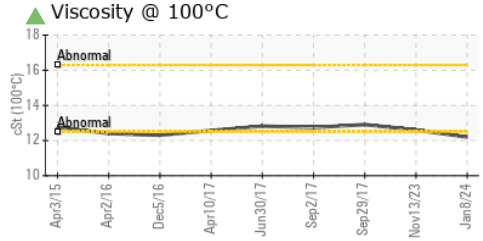
Copper (ppm)



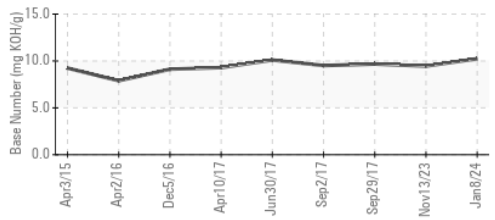
Silicon (ppm)



▲ Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : TO10003073 **Recieved** : 16 Jan 2024
Lab Number : 06061377 **Diagnosed** : 18 Jan 2024
Unique Number : 10832759 **Diagnostician** : Jonathan Hester
Test Package : MOB 2 (Additional Tests: FuelDilution, KV40, PercentFuel, 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)

ANCHOR STONE TULSA ROCK
TULSA ROCK QUARRY, 66TH ST N 145TH AVENUE
TULSA, OK
US 74137
Contact: DAVID MORRIS
dmorris@anchorstoneco.com
T:
F:

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