

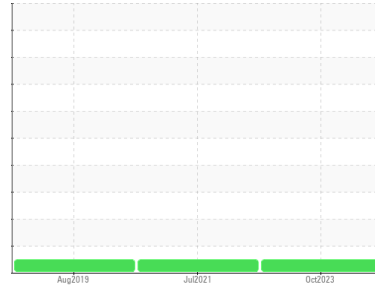
OIL ANALYSIS REPORT

Sample Rating Trend

NORMAL



Area
DE Samples - CAT LAB
Machine Id
CATERPILLAR 336 EXCAVATOR 6853 (S/N RKB01612)
Component
Diesel Engine
Fluid
TULCO LUBSOIL CK-4 15W40 (10 GAL)



DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

Fluid Condition

The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		TO10002795	TO105307487	TO1006755
Sample Date	Client Info		23 Oct 2023	07 Jul 2021	16 Aug 2019
Machine Age	hrs	Client Info	11990	8477	5440
Oil Age	hrs	Client Info	353	277	300
Oil Changed	Client Info		Not Chngd	Changed	Changed
Sample Status			NORMAL	NORMAL	NORMAL

CONTAMINATION

	method	limit/base	current	history1	history2
Fuel	WC Method	>5	<1.0	<1.0	<1.0
Glycol	WC Method		NEG	NEG	NEG

WEAR METALS

	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m >100	17	7	7
Chromium	ppm	ASTM D5185m >20	2	<1	<1
Nickel	ppm	ASTM D5185m >2	<1	0	<1
Titanium	ppm	ASTM D5185m >2	0	<1	0
Silver	ppm	ASTM D5185m >2	0	0	<1
Aluminum	ppm	ASTM D5185m >25	2	3	1
Lead	ppm	ASTM D5185m >40	0	<1	<1
Copper	ppm	ASTM D5185m >330	<1	1	9
Tin	ppm	ASTM D5185m >15	0	<1	0
Antimony	ppm	ASTM D5185m	---	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	37	5	8
Barium	ppm	ASTM D5185m	0	0	0
Molybdenum	ppm	ASTM D5185m 65	63	4	54
Manganese	ppm	ASTM D5185m	<1	<1	<1
Magnesium	ppm	ASTM D5185m 1060	805	76	888
Calcium	ppm	ASTM D5185m 1140	1256	2735	1152
Phosphorus	ppm	ASTM D5185m 1170	1078	905	913
Zinc	ppm	ASTM D5185m 1230	1205	1068	1180
Sulfur	ppm	ASTM D5185m 3130	3190	3404	2877

CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >25	4	4	2
Sodium	ppm	ASTM D5185m	3	2	5
Potassium	ppm	ASTM D5185m >20	2	1	0

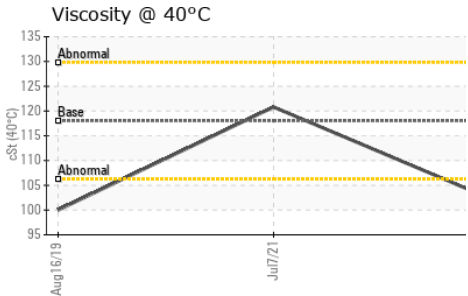
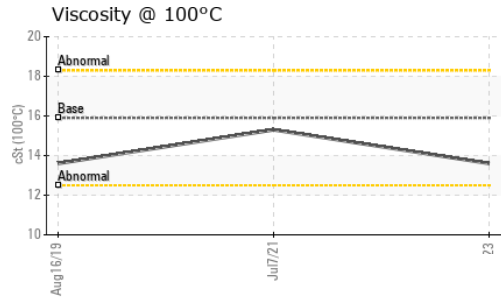
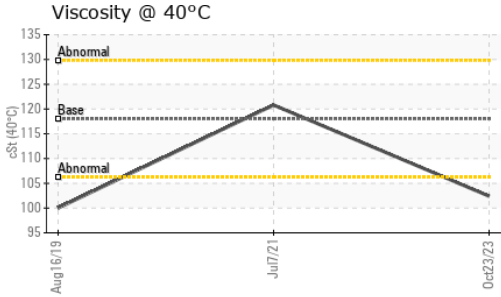
INFRA-RED

	method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844 >3	0.5	0.5	0.5
Nitration	Abs/cm	*ASTM D7624 >20	7.5	7.3	8
Sulfation	Abs/.1mm	*ASTM D7415 >30	19.8	18	19.6

FLUID DEGRADATION

	method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414 >25	14.5	9.4	15.1
Base Number (BN)	mg KOH/g	ASTM D2896 10.8	10.13	9.54	9.58

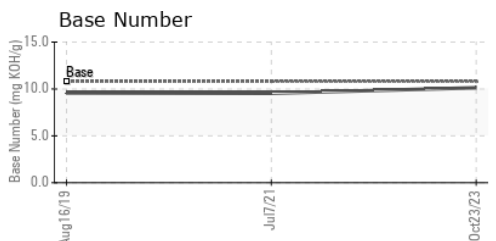
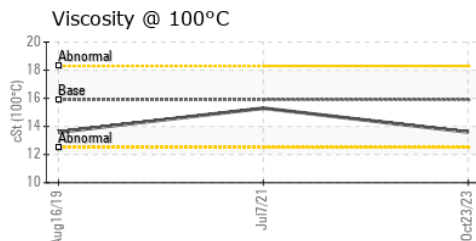
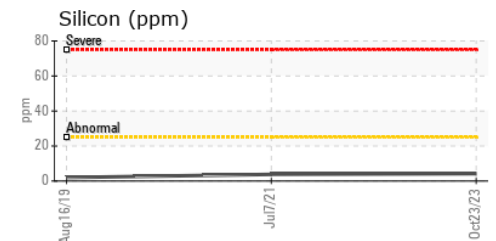
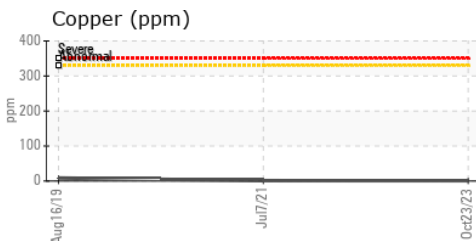
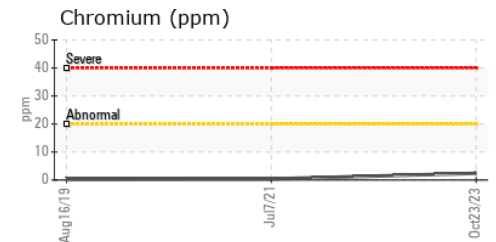
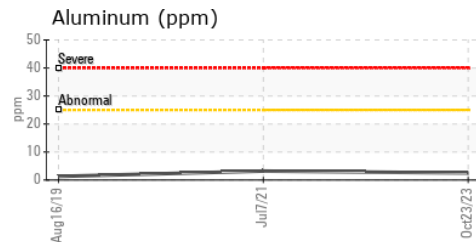
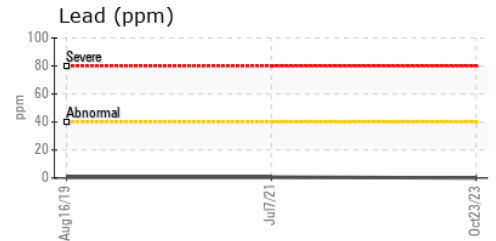
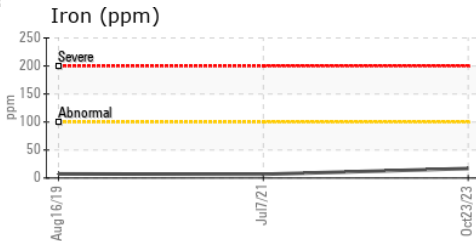
OIL ANALYSIS REPORT



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	>0.2	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG

FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	118	102.4	120.8
Visc @ 100°C	cSt	ASTM D445	15.9	13.6	15.3
Viscosity Index (VI)	Scale	ASTM D2270	143	132	131

GRAPHS



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : TO10002795 **Received** : 30 Oct 2023
Lab Number : 05993780 **Diagnosed** : 03 Nov 2023
Unique Number : 10722140 **Diagnostician** : Jonathan Hester
Test Package : MOB 2 (Additional Tests: KV40, VI)

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

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)

T:
F: