TRAAP
Texas Refinery Advanced Analysis Program

OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	ABNORMAL
FLUID CONDITION	NORMAL

Machine Id
CATERPILLAR 972K L11 Z4W00455
Component
Diesel Engine
Fluid
TRC MOLY XL PRO-SPEC IV XP 15W40 (7 QTS)

RECOMMENDATION

We recommend that you drain the oil from the component if this has not already been done.

WEAR

All component wear rates are normal.

CONTAMINATION

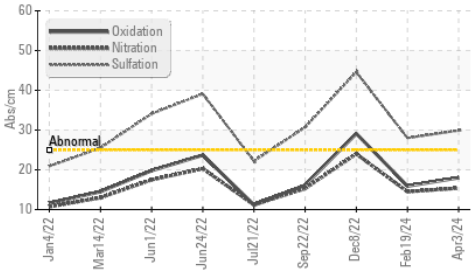
Light concentration of carbon/soot present in the oil.

FLUID CONDITION

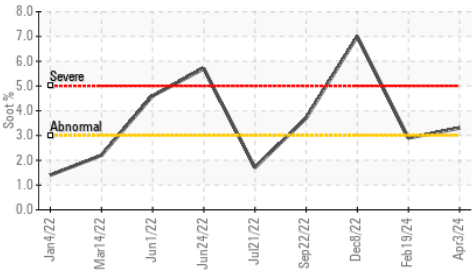
The BN result indicates that there is suitable alkalinity remaining in the oil. The oil is no longer serviceable due to the presence of contaminants.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		TR06161035	TR06101170	TR05716033
Sample Date		Client Info		03 Apr 2024	19 Feb 2024	08 Dec 2022
Machine Age	hrs	Client Info		17615	17326	15364
Oil Age	hrs	Client Info		1019	730	1129
Filter Age	hrs	Client Info		1019	730	1129
Oil Changed		Client Info		Not Changd	Not Changd	Not Changd
Filter Changed		Client Info		Not Changd	Not Changd	Not Changd
Sample Status				ABNORMAL	NORMAL	SEVERE
Iron	ppm	ASTM D5185m	>100	42	29	73
Chromium	ppm	ASTM D5185m	>20	1	1	4
Nickel	ppm	ASTM D5185m	>2	0	0	<1
Titanium	ppm	ASTM D5185m	>2	0	<1	<1
Silver	ppm	ASTM D5185m	>2	0	0	<1
Aluminum	ppm	ASTM D5185m	>25	10	8	15
Lead	ppm	ASTM D5185m	>40	2	<1	20
Copper	ppm	ASTM D5185m	>330	2	<1	5
Tin	ppm	ASTM D5185m	>15	<1	<1	3
Vanadium	ppm	ASTM D5185m		0	0	<1
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Silicon	ppm	ASTM D5185m	>25	9	8	12
Potassium	ppm	ASTM D5185m	>20	2	0	2
Fuel	%	ASTM D3524	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>3	▲ 3.3	2.9	▲ 7
Nitration	Abs/cm	*ASTM D7624	>20	15.4	14.5	24.0
Sulfation	Abs/.1mm	*ASTM D7415	>30	29.9	28.0	44.6
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
Sodium	ppm	ASTM D5185m		17	2	4
Boron	ppm	ASTM D5185m		11	0	7
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m		122	128	135
Manganese	ppm	ASTM D5185m		<1	<1	1
Magnesium	ppm	ASTM D5185m		155	26	31
Calcium	ppm	ASTM D5185m		4319	4123	4829
Phosphorus	ppm	ASTM D5185m		1025	835	967
Zinc	ppm	ASTM D5185m		1175	1062	1143
Sulfur	ppm	ASTM D5185m		5543	4092	5111
Oxidation	Abs/.1mm	*ASTM D7414	>25	18.0	15.9	29.1
Base Number (BN)	mg KOH/g	ASTM D2896		9.49	11.69	9.04
Visc @ 100°C	cSt	ASTM D445		16.1	16.1	▲ 19.2

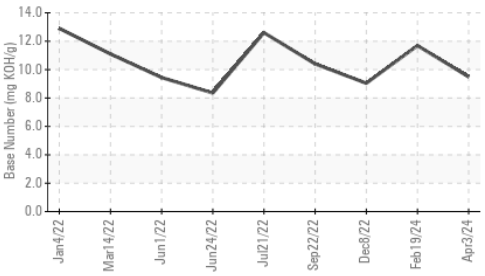
FT-IR (Direct Trend)



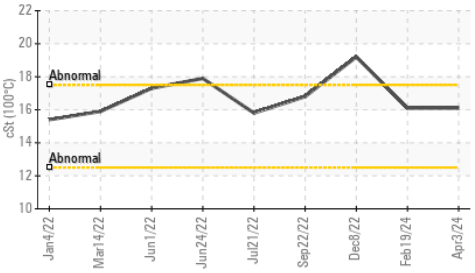
Soot %



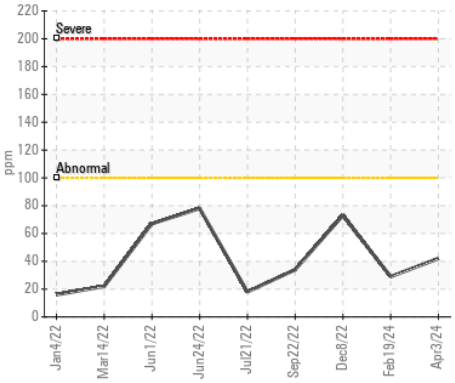
Base Number



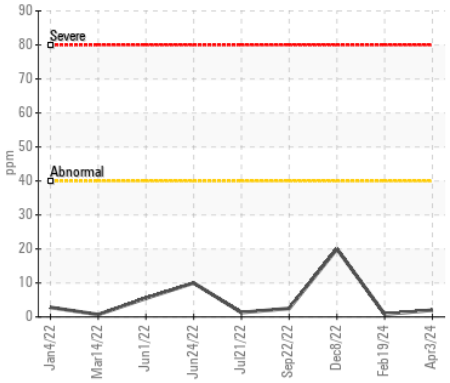
Viscosity @ 100°C



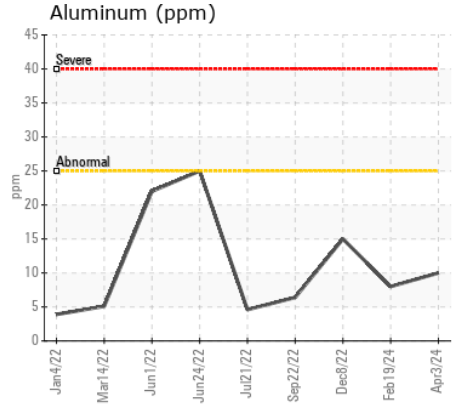
Iron (ppm)



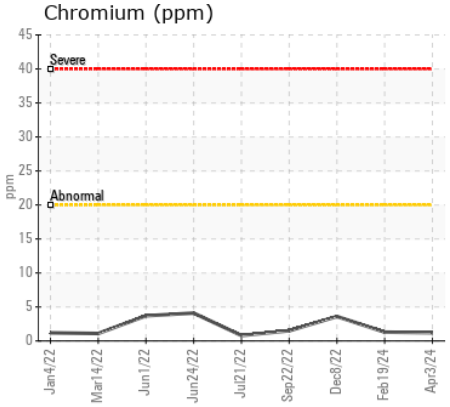
Lead (ppm)



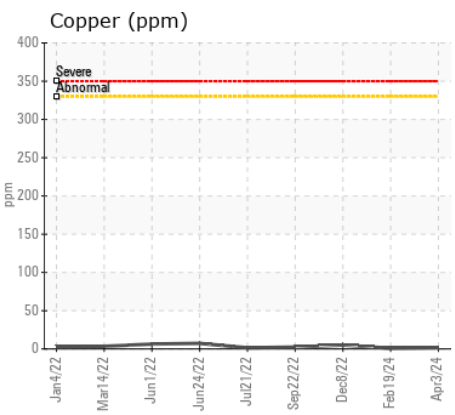
Aluminum (ppm)



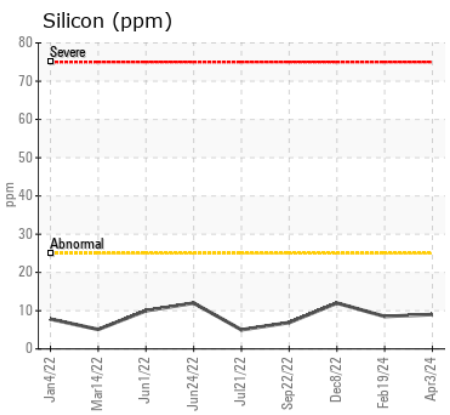
Chromium (ppm)



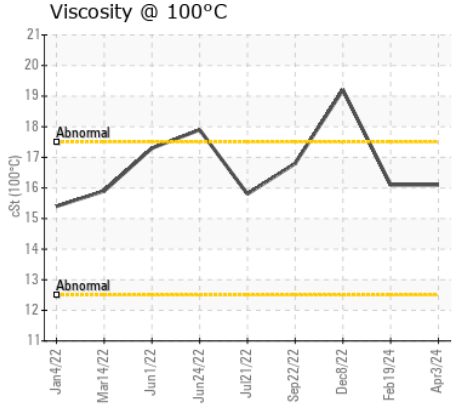
Copper (ppm)



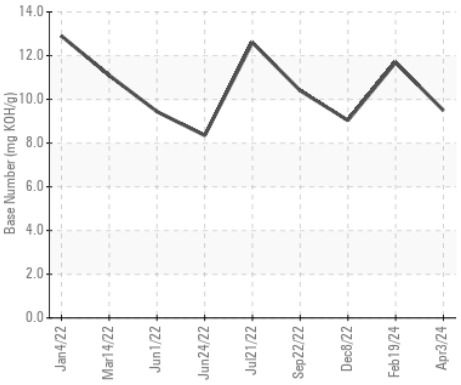
Silicon (ppm)



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory	: WearCheck USA - 501 Madison Ave., Cary, NC 27513		
Sample No.	: TR06161035	**Received**	: 25 Apr 2024
Lab Number	: 06161035	**Tested**	: 26 Apr 2024
Unique Number	: 10996458	**Diagnosed**	: 26 Apr 2024 - Wes Davis
Test Package	: MOB 2 (Additional Tests: FuelDilution)		

To discuss this sample report, contact Customer Service at 1-800-827-0711.
** - 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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