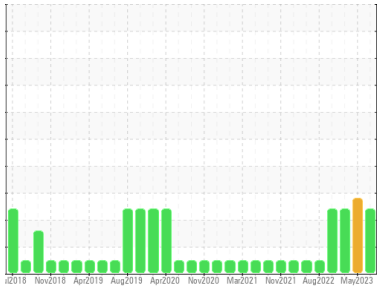
OIL ANALYSIS REPORT

Machine Id
CATERPILLAR D6T 8170 (S/N JML00456)
Component
Diesel Engine
Fluid
DIESEL ENGINE OIL SAE 15W40 (--- GAL)

Sample Rating Trend



DIRT

DIAGNOSIS

Recommendation
We advise that you check the air filter, air induction system, and any areas where dirt may enter the component. Oil and 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
Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress. Tests indicate that there is no fuel present in the oil.

Fluid Condition
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is acceptable for the time in service.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**WC0913175**	WC0790960	WC0755129
Sample Date		Client Info		**08 Apr 2024**	15 May 2023	12 Dec 2022
Machine Age	hrs	Client Info		**15227**	14605	14138
Oil Age	hrs	Client Info		**622**	467	480
Oil Changed		Client Info		**Changed**	Changed	Changed
Sample Status				**ABNORMAL**	SEVERE	SEVERE

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	**35**	19	19
Chromium	ppm	ASTM D5185m	>20	**1**	<1	1
Nickel	ppm	ASTM D5185m	>2	**0**	0	0
Titanium	ppm	ASTM D5185m	>2	**1**	0	0
Silver	ppm	ASTM D5185m	>2	**0**	0	<1
Aluminum	ppm	ASTM D5185m	>25	**17**	4	4
Lead	ppm	ASTM D5185m	>40	**0**	3	<1
Copper	ppm	ASTM D5185m	>330	**3**	<1	<1
Tin	ppm	ASTM D5185m	>15	**<1**	<1	<1
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	250	**29**	4	7
Barium	ppm	ASTM D5185m	10	**0**	0	0
Molybdenum	ppm	ASTM D5185m	100	**53**	55	52
Manganese	ppm	ASTM D5185m		**<1**	<1	<1
Magnesium	ppm	ASTM D5185m	450	**577**	770	783
Calcium	ppm	ASTM D5185m	3000	**1744**	1027	1009
Phosphorus	ppm	ASTM D5185m	1150	**1023**	864	865
Zinc	ppm	ASTM D5185m	1350	**1204**	1071	1052
Sulfur	ppm	ASTM D5185m	4250	**3512**	3247	2943

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>25	**54**	4	5
Sodium	ppm	ASTM D5185m	>158	**4**	0	1
Potassium	ppm	ASTM D5185m	>20	**<1**	2	0
Fuel	%	ASTM D3524	>5	**0.3**	16.3	9.6

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>3	**2.4**	0.8	0.9
Nitration	Abs/cm	*ASTM D7624	>20	**10.6**	10.1	11.0
Sulfation	Abs/.1mm	*ASTM D7415	>30	**25.3**	23.0	21.3

FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	**20.9**	22.8	17.6
Base Number (BN)	mg KOH/g	ASTM D2896	8.5	**10.2**	5.1	7.5

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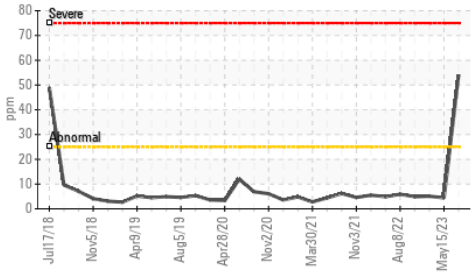
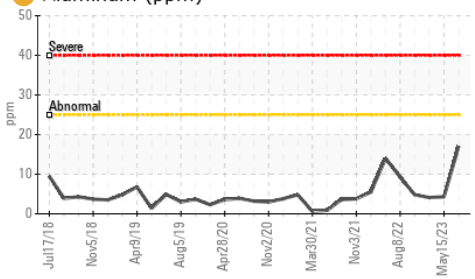
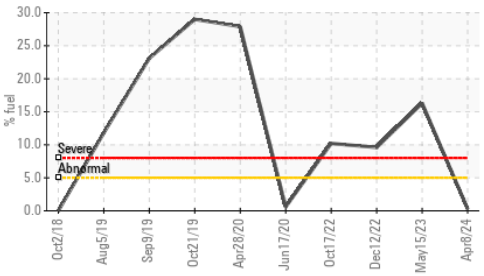
Silicon (ppm)



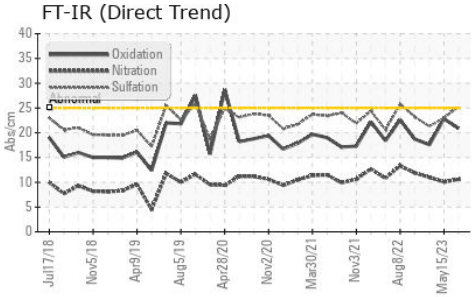
Aluminum (ppm)



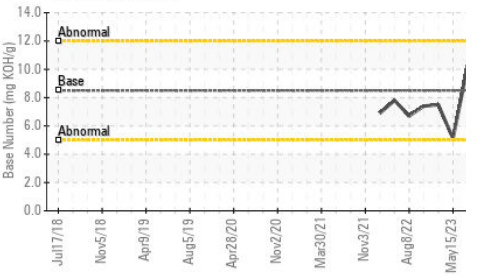
Fuel Dilution



FT-IR (Direct Trend)



Base Number

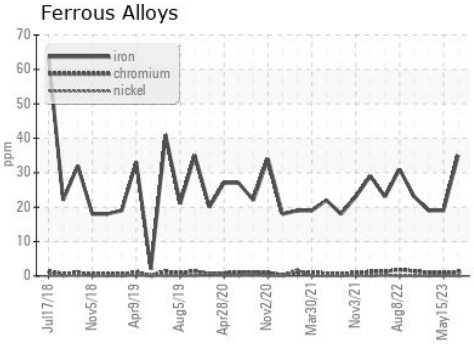


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	NONE	NONE
Sand/Dirt	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

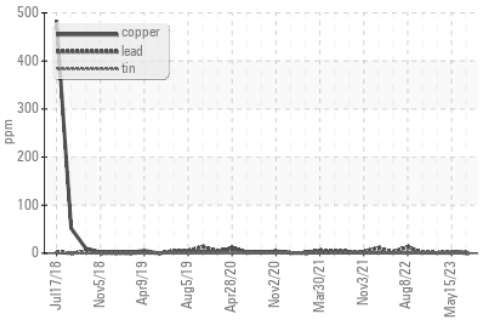
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	14.4	**14.2**	▲ 9.1	▲ 10.3

GRAPHS

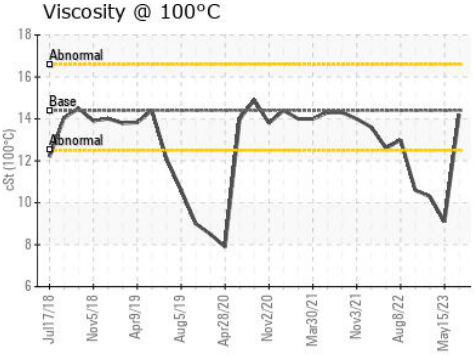
Ferrous Alloys



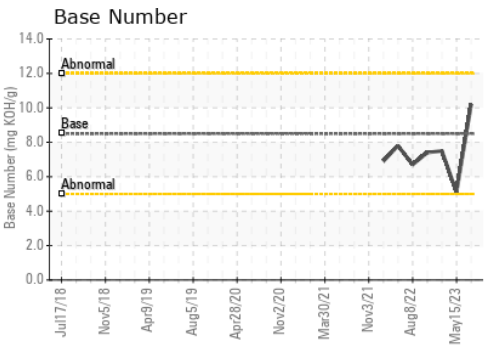
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0913175
Lab Number : 06147049
Unique Number : 10977127
Test Package : CONST (Additional Tests: PercentFuel, TBN)

Received : 12 Apr 2024
Tested : 17 Apr 2024
Diagnosed : 18 Apr 2024 - Don Baldridge

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: TRANEW [WUSCAR] 06147049 (Generated: 04/18/2024 11:22:22) Rev: 1

Contact/Location: MIKE WYATT - TRANEW