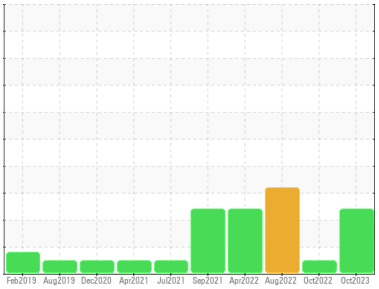
OIL ANALYSIS REPORT

Sample Rating Trend



DIRT

Machine Id
CATERPILLAR 950M 5087
Component
Diesel Engine
Fluid
DIESEL ENGINE OIL SAE 15W40 (7 GAL)

DIAGNOSIS

Recommendation
We advise that you check the air filter, air induction system, and any areas where dirt may enter the component. 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.

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		**WC0650922**	WC0744192	WC0682074
Sample Date		Client Info		**23 Oct 2023**	18 Oct 2022	12 Aug 2022
Machine Age	hrs	Client Info		**14415**	12001	11621
Oil Age	hrs	Client Info		**200**	0	250
Oil Changed		Client Info		**Not Changd**	N/A	Changed
Sample Status				**ABNORMAL**	NORMAL	ABNORMAL

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	**39**	49	▲ 100
Chromium	ppm	ASTM D5185m	>20	**<1**	<1	1
Nickel	ppm	ASTM D5185m	>2	**0**	0	<1
Titanium	ppm	ASTM D5185m	>2	**0**	0	<1
Silver	ppm	ASTM D5185m	>2	**0**	0	0
Aluminum	ppm	ASTM D5185m	>25	▲ **8**	7	▲ 8
Lead	ppm	ASTM D5185m	>40	**0**	<1	<1
Copper	ppm	ASTM D5185m	>330	**6**	1	2
Tin	ppm	ASTM D5185m	>15	**0**	<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	**0**	6	5
Barium	ppm	ASTM D5185m	10	**0**	0	0
Molybdenum	ppm	ASTM D5185m	100	**60**	60	56
Manganese	ppm	ASTM D5185m		**0**	<1	<1
Magnesium	ppm	ASTM D5185m	450	**860**	909	873
Calcium	ppm	ASTM D5185m	3000	**1092**	1156	1101
Phosphorus	ppm	ASTM D5185m	1150	**928**	1016	925
Zinc	ppm	ASTM D5185m	1350	**1182**	1196	1176
Sulfur	ppm	ASTM D5185m	4250	**2794**	3769	2774

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>25	▲ **28**	17	▲ 26
Sodium	ppm	ASTM D5185m	>158	**7**	2	2
Potassium	ppm	ASTM D5185m	>20	**14**	4	4

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>3	**0.5**	0.4	0.5
Nitration	Abs/cm	*ASTM D7624	>20	**11.0**	9.5	10.7
Sulfation	Abs/.1mm	*ASTM D7415	>30	**24.9**	20.9	23.1

FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	**24.2**	17.3	19.1
Base Number (BN)	mg KOH/g	ASTM D2896	8.5	**4.7**	8.8	7.7

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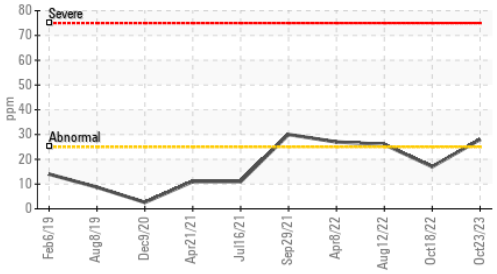
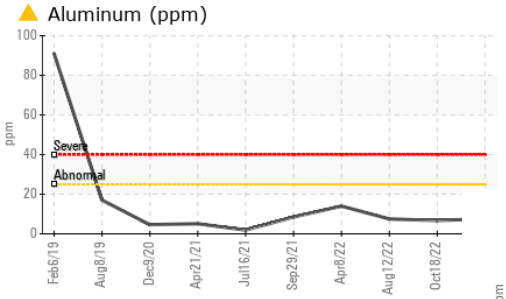
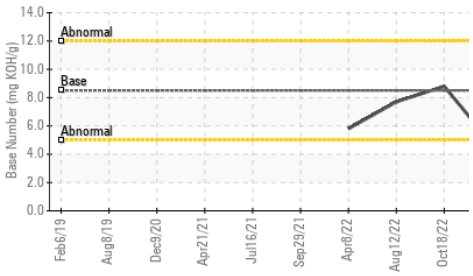
Silicon (ppm)



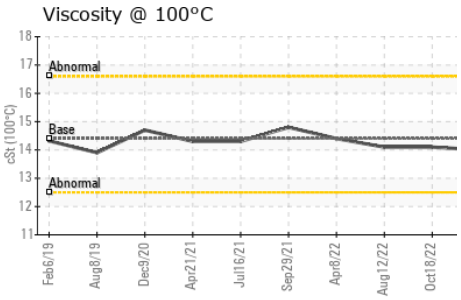
Aluminum (ppm)



Base Number



Viscosity @ 100°C

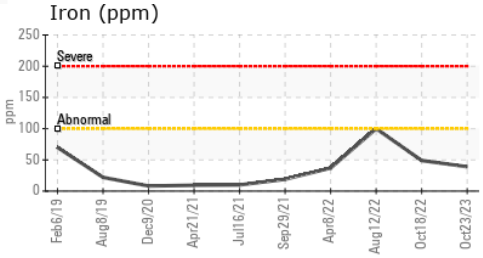


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	NONE	NONE
Sand/Dirt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

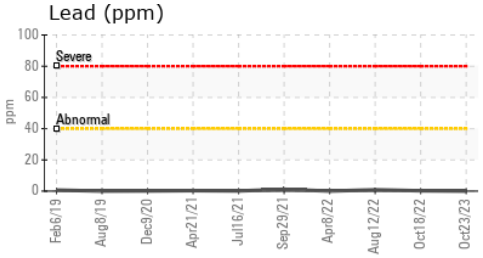
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	14.4	**14.0**	14.1	14.1

GRAPHS

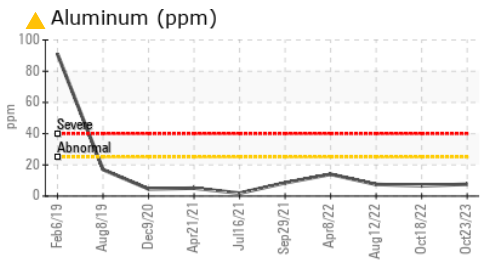
Iron (ppm)



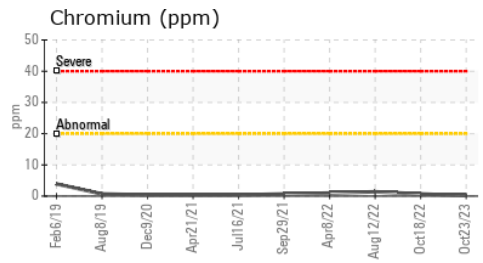
Lead (ppm)



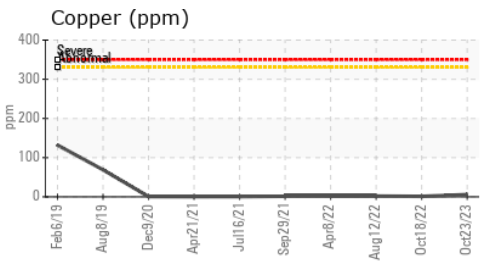
Aluminum (ppm)



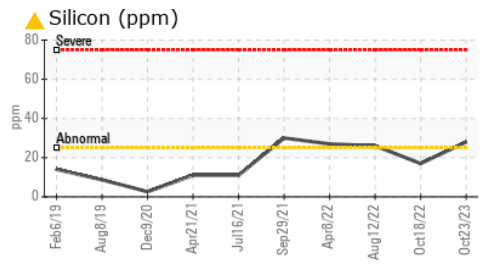
Chromium (ppm)



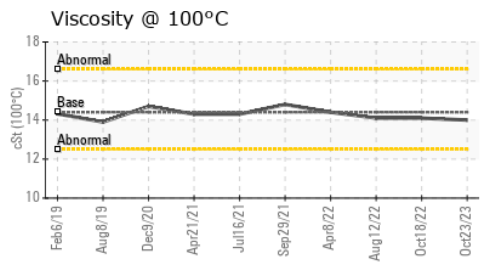
Copper (ppm)



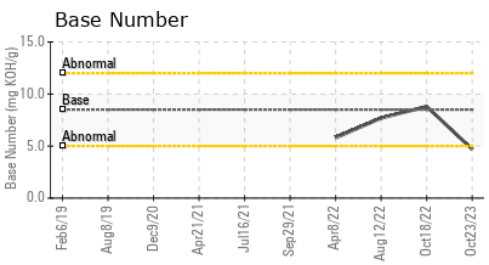
Silicon (ppm)



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0650922 **Received** : 06 Nov 2023
Lab Number : 05998701 **Diagnosed** : 07 Nov 2023
Unique Number : 10727061 **Diagnostician** : Don Baldridge
Test Package : MOB 1 (Additional Tests: TBN)

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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