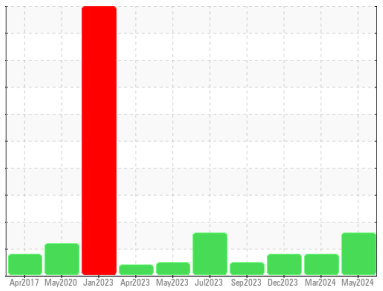
OIL ANALYSIS REPORT

Sample Rating Trend



WEAR

Area
Rockydale Quarries [W11509]
Machine Id
JOHN DEERE 944K 1DW944KXVGE677118
Component
Diesel Engine
Fluid
JOHN DEERE ENGINE OIL PLUS 50 II 15W40 (--- QTS)

DIAGNOSIS

▲ Recommendation
Oil and filter change at the time of sampling has been noted. No corrective action is recommended at this time. Resample at the next service interval to monitor.

▲ Wear
The copper level is abnormal. Valve wear is indicated. In the absence of other significant wear metals, suspect copper due to sources other than wear (i.e. cooling core).

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 acceptable for the time in service.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**JR0126029**	JR0074526	JR0170405
Sample Date		Client Info		**09 May 2024**	01 Mar 2024	01 Dec 2023
Machine Age	hrs	Client Info		**11649**	11107	11106
Oil Age	hrs	Client Info		**11106**	1	0
Oil Changed		Client Info		**Changed**	N/A	Changed
Sample Status				**ABNORMAL**	ABNORMAL	ABNORMAL

CONTAMINATION		method	limit/base	current	history1	history2
Fuel		WC Method	>2.1	**<1.0**	<1.0	<1.0
Water		WC Method	>0.21	**NEG**	NEG	NEG

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>51	**48**	29	41
Chromium	ppm	ASTM D5185m	>11	**1**	<1	<1
Nickel	ppm	ASTM D5185m	>5	▲ **10**	7	5
Titanium	ppm	ASTM D5185m		**<1**	<1	0
Silver	ppm	ASTM D5185m	>3	**0**	<1	0
Aluminum	ppm	ASTM D5185m	>31	**8**	7	7
Lead	ppm	ASTM D5185m	>26	**13**	6	8
Copper	ppm	ASTM D5185m	>26	▲ **224**	▲ 233	▲ 333
Tin	ppm	ASTM D5185m	>4	**5**	3	5
Vanadium	ppm	ASTM D5185m		**0**	<1	0
Cadmium	ppm	ASTM D5185m		**<1**	<1	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		**107**	182	24
Barium	ppm	ASTM D5185m		**<1**	0	2
Molybdenum	ppm	ASTM D5185m		**243**	240	91
Manganese	ppm	ASTM D5185m		**2**	1	<1
Magnesium	ppm	ASTM D5185m		**834**	756	464
Calcium	ppm	ASTM D5185m		**1681**	1509	1577
Phosphorus	ppm	ASTM D5185m		**985**	1023	985
Zinc	ppm	ASTM D5185m		**1228**	1127	1144
Sulfur	ppm	ASTM D5185m		**3739**	3508	2936

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>22	**9**	10	8
Sodium	ppm	ASTM D5185m	>31	**4**	2	6
Potassium	ppm	ASTM D5185m	>20	**2**	4	5
Glycol	%	*ASTM D2982		**NEG**	NEG	NEG

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>3	**1.4**	0.9	1.2
Nitration	Abs/cm	*ASTM D7624	>20	**9.9**	9.1	8.9
Sulfation	Abs/.1mm	*ASTM D7415	>30	**23.7**	21.3	21.3

FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	**16.5**	15.4	15.8
Base Number (BN)	mg KOH/g	ASTM D2896	13.6	**8.2**	8.6	8.1

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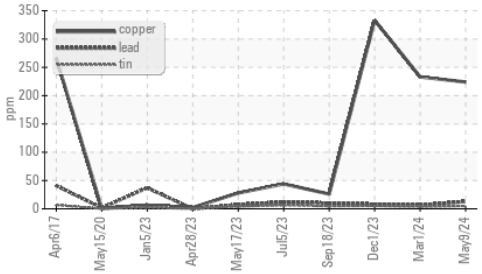
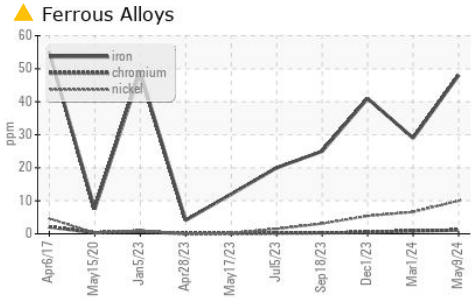
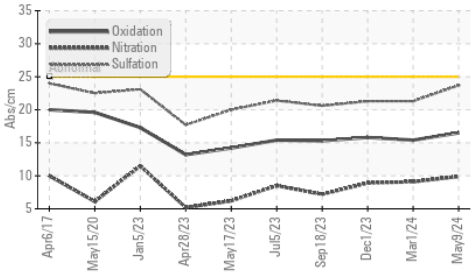
Non-ferrous Metals



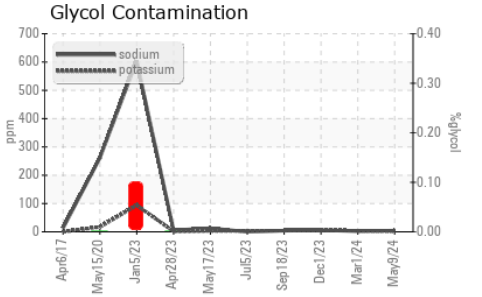
Ferrous Alloys



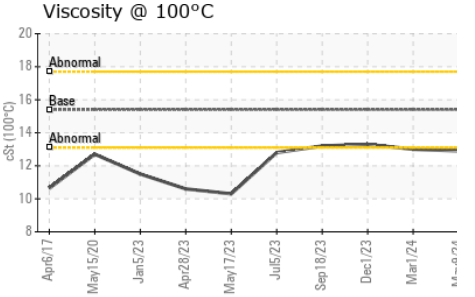
FT-IR (Direct Trend)



Glycol Contamination



Viscosity @ 100°C

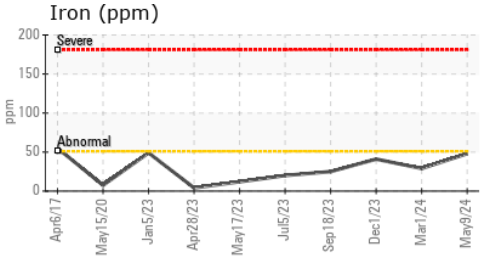


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Appearance	scalar	*Visual	NORML	**NORML**	NORML	NORML
Odor	scalar	*Visual	NORML	**NORML**	NORML	NORML
Emulsified Water	scalar	*Visual	>0.21	**NEG**	NEG	NEG
Free Water	scalar	*Visual		**NEG**	NEG	NEG

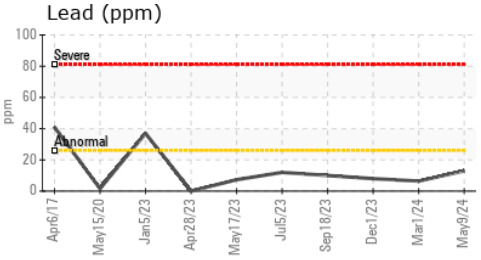
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	**12.9**	13.0	13.3

GRAPHS

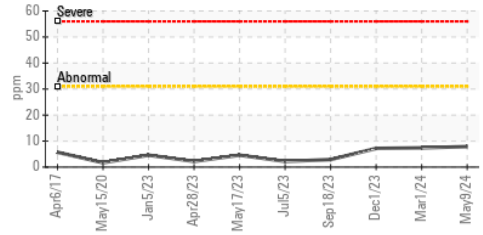
Iron (ppm)



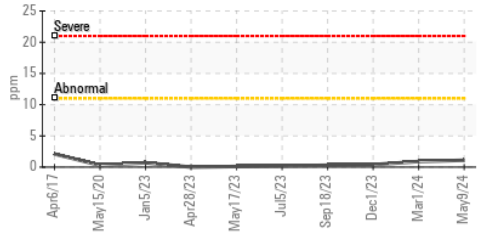
Lead (ppm)



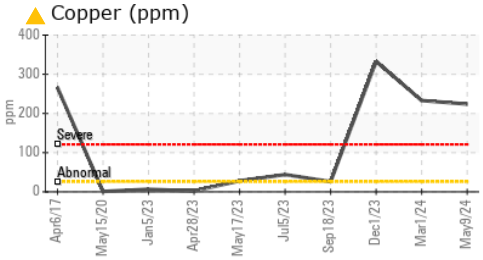
Aluminum (ppm)



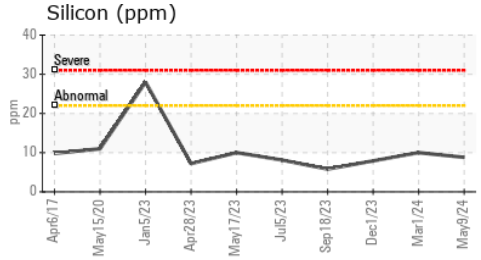
Chromium (ppm)



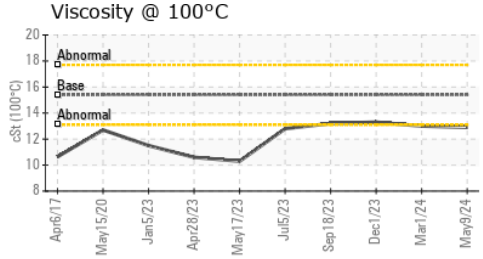
Copper (ppm)



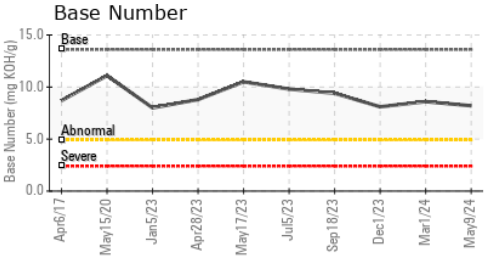
Silicon (ppm)



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : JR0126029
Lab Number : 06177008
Unique Number : 11023061
Test Package : MOBCE (Additional Tests: Glycol, TBN)

Received : 13 May 2024
Tested : 14 May 2024
Diagnosed : 14 May 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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