



OIL ANALYSIS REPORT

WEAR	SEVERE
CONTAMINATION	SEVERE
FLUID CONDITION	ABNORMAL

Area
Store 9 - Marietta
Machine Id
JOHN DEERE 1059

Component
Diesel Engine
Fluid
SHELL ROTELLA T 15W40 (--- GAL)

RECOMMENDATION

We advise that you check for the source of the coolant leak. Check for low coolant level. Oil and filter change at the time of sampling has been noted. We advise that you inspect for the source(s) of wear. We recommend an early resample to monitor this condition.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		LEC0045873	LEC0044835	LEC0041005
Sample Date		Client Info		04 Jan 2024	27 Nov 2023	22 Sep 2023
Machine Age	hrs	Client Info		21889	21385	20828
Oil Age	hrs	Client Info		400	400	400
Filter Age	hrs	Client Info		400	400	400
Oil Changed		Client Info		Changed	Changed	Changed
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				SEVERE	SEVERE	SEVERE

WEAR

Bearing and/or bushing wear is indicated.

Iron	ppm	ASTM D5185m	>100	39	31	22
Chromium	ppm	ASTM D5185m	>20	2	2	2
Nickel	ppm	ASTM D5185m	>4	<1	0	<1
Titanium	ppm	ASTM D5185m		0	<1	0
Silver	ppm	ASTM D5185m	>3	<1	0	<1
Aluminum	ppm	ASTM D5185m	>20	7	6	2
Lead	ppm	ASTM D5185m	>40	259	193	114
Copper	ppm	ASTM D5185m	>330	11	6	2
Tin	ppm	ASTM D5185m	>15	4	4	3
Vanadium	ppm	ASTM D5185m		0	<1	<1
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

Sodium and/or potassium levels are high.

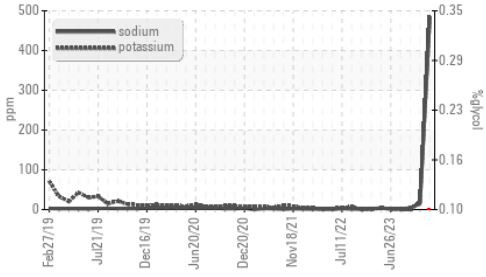
Silicon	ppm	ASTM D5185m	>120	8	7	6
Potassium	ppm	ASTM D5185m	>20	482	20	0
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol	%	*ASTM D2982		0.10	NEG	NEG
Soot %	%	*ASTM D7844	>3	0.9	0.6	0.6
Nitration	Abs/cm	*ASTM D7624	>20	13.0	11.3	10.7
Sulfation	Abs/.1mm	*ASTM D7415	>30	26.2	25.4	25.2
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

FLUID CONDITION

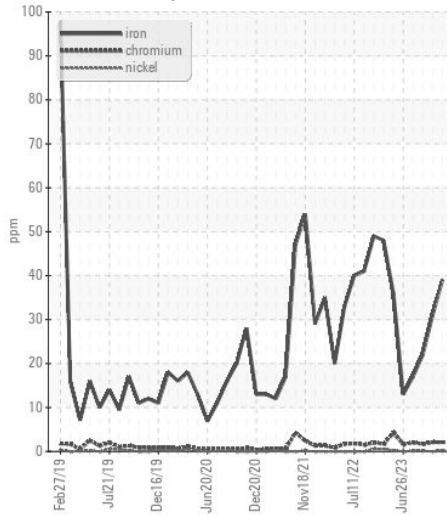
The BN result indicates that there is suitable alkalinity remaining in the oil. The oil is no longer serviceable due to the presence of contaminants.

Sodium	ppm	ASTM D5185m		486	14	4
Boron	ppm	ASTM D5185m	316	132	137	198
Barium	ppm	ASTM D5185m	0.0	0	0	0
Molybdenum	ppm	ASTM D5185m	1.2	211	128	131
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m	24	657	705	687
Calcium	ppm	ASTM D5185m	2292	1468	1631	1567
Phosphorus	ppm	ASTM D5185m	1064	711	763	700
Zinc	ppm	ASTM D5185m	1160	843	916	883
Sulfur	ppm	ASTM D5185m	4996	2428	2506	2449
Oxidation	Abs/.1mm	*ASTM D7414	>25	22.0	21.5	20.8
Base Number (BN)	mg KOH/g	ASTM D2896	10.1	8.2	7.2	7.7
Visc @ 100°C	cSt	ASTM D445	15.7	13.4	13.1	13.3

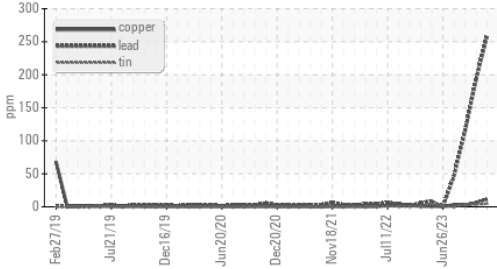
Glycol Contamination



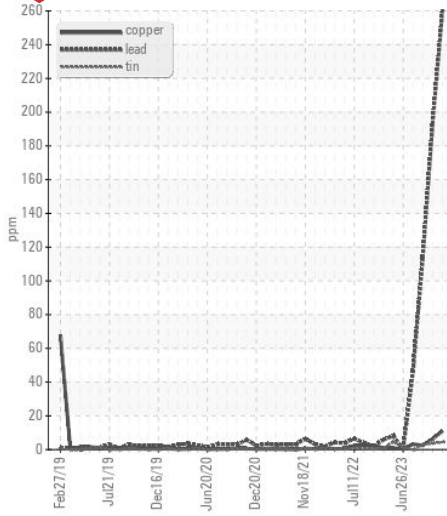
Ferrous Alloys



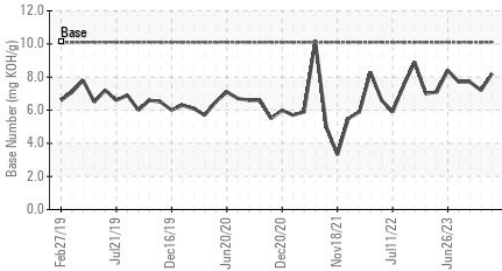
Non-ferrous Metals



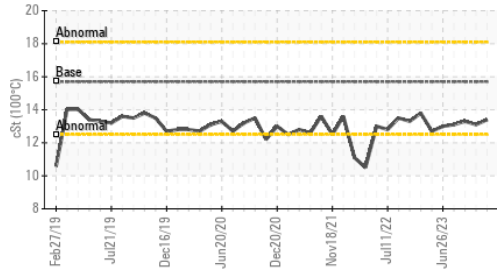
Non-ferrous Metals



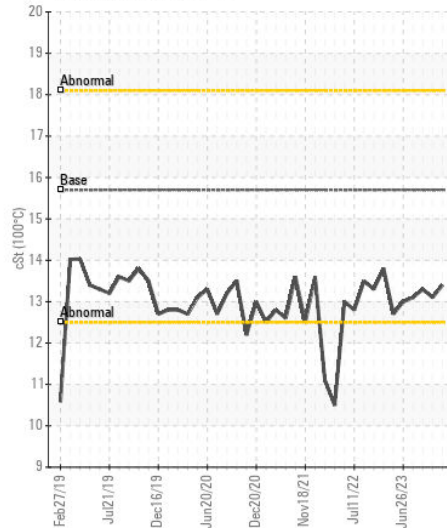
Base Number



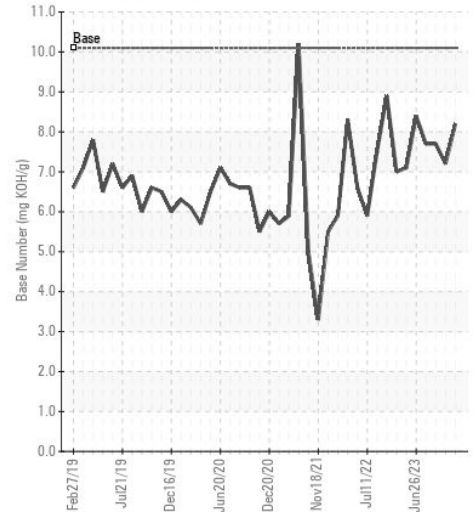
Viscosity @ 100°C



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : LEC0045873 **Received** : 16 Jan 2024
Lab Number : 06060799 **Diagnosed** : 17 Jan 2024
Unique Number : 10832181 **Diagnostician** : Jonathan Hester
Test Package : CONST (Additional Tests: Glycol, TBN)

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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)