



WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL



Machine Id
JOHN DEERE 310E 1DW310EXEMF711881

Component
Diesel Engine

Fluid
JOHN DEERE ENGINE OIL PLUS 50 II 15W40 (--- QTS)

RECOMMENDATION

Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		JR0132838	JR0132055	JR0116666
Sample Date		Client Info		07 Oct 2022	21 Jun 2022	15 Mar 2022
Machine Age	hrs	Client Info		1952	1453	1037
Oil Age	hrs	Client Info		499	416	446
Filter Age	hrs	Client Info		499	0	0
Oil Changed		Client Info		Changed	Changed	Changed
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>51	32	26	23
Chromium	ppm	ASTM D5185m	>11	2	<1	<1
Nickel	ppm	ASTM D5185m	>5	13	0	<1
Titanium	ppm	ASTM D5185m		1	0	0
Silver	ppm	ASTM D5185m		<1	0	0
Aluminum	ppm	ASTM D5185m	>31	4	4	4
Lead	ppm	ASTM D5185m	>26	1	<1	<1
Copper	ppm	ASTM D5185m	>26	2	2	4
Tin	ppm	ASTM D5185m	>4	2	<1	<1
Vanadium	ppm	ASTM D5185m		2	0	<1
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

There is no indication of any contamination in the oil.

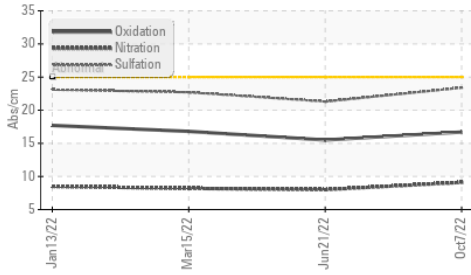
Silicon	ppm	ASTM D5185m	>22	10	6	6
Potassium	ppm	ASTM D5185m	>20	<1	0	3
Fuel		WC Method	>2.1	<1.0	<1.0	<1.0
Water		WC Method	>0.21	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>3	0.5	0.3	0.2
Nitration	Abs/cm	*ASTM D7624	>20	9.1	8.0	8.2
Sulfation	Abs/.1mm	*ASTM D7415	>30	23.4	21.3	22.7
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

FLUID CONDITION

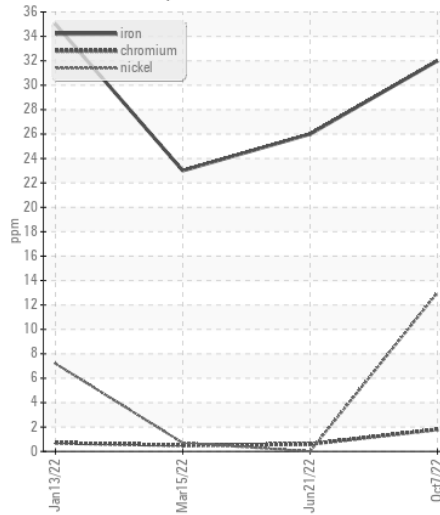
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is acceptable for the time in service.

Sodium	ppm	ASTM D5185m	>31	3	<1	<1
Boron	ppm	ASTM D5185m		193	250	238
Barium	ppm	ASTM D5185m		<1	<1	0
Molybdenum	ppm	ASTM D5185m		224	246	262
Manganese	ppm	ASTM D5185m		2	<1	<1
Magnesium	ppm	ASTM D5185m		788	791	861
Calcium	ppm	ASTM D5185m		1379	1442	1493
Phosphorus	ppm	ASTM D5185m		891	833	950
Zinc	ppm	ASTM D5185m		1060	1070	1189
Sulfur	ppm	ASTM D5185m		3230	3038	2826
Oxidation	Abs/.1mm	*ASTM D7414	>25	16.7	15.5	16.8
Base Number (BN)	mg KOH/g	ASTM D2896	13.6	10.0	8.5	10.4
Visc @ 100°C	cSt	ASTM D445	15.4	13.7	13.6	13.2

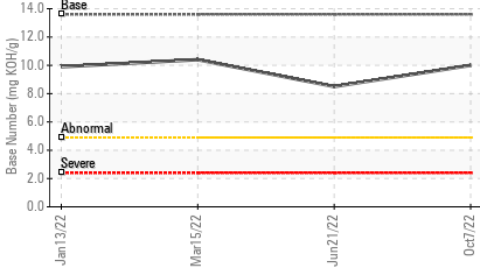
FT-IR (Direct Trend)



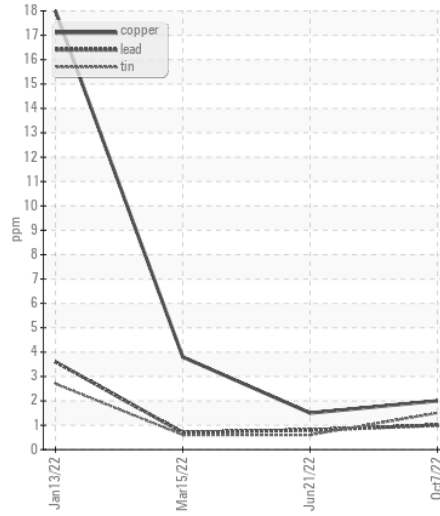
Ferrous Alloys



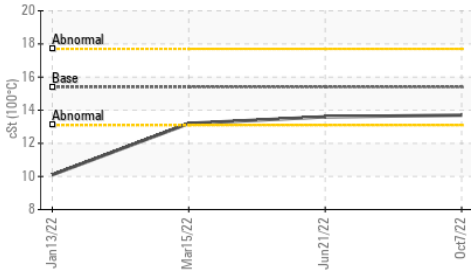
Base Number



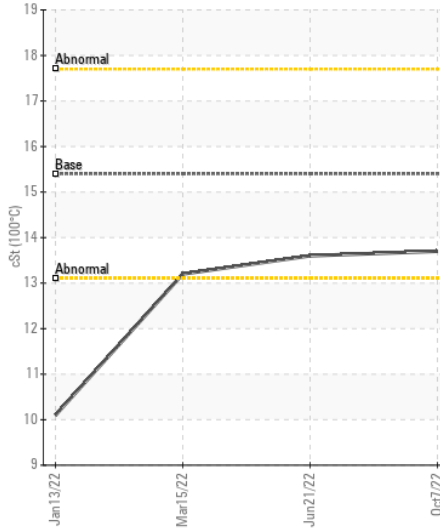
Non-ferrous Metals



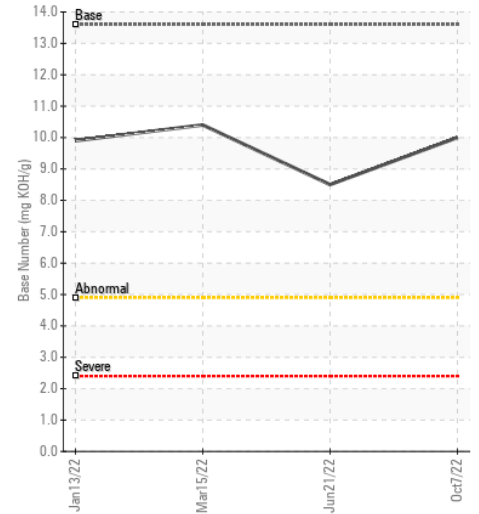
Viscosity @ 100°C



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : JR0132838 **Received** : 10 Oct 2022
Lab Number : 05662015 **Tested** : 11 Oct 2022
Unique Number : 10166584 **Diagnosed** : 12 Oct 2022 - Angela Borella
Test Package : CONST (Additional Tests: TBN)

L2 CONSTRUCTION
 1950 BELLWOOD RD
 RICHMOND, VA
 US 23237

Contact: DANIEL LIPFORD
 daniell@l2constructionservices.com

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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F: