



WEAR	NORMAL
CONTAMINATION	ABNORMAL
FLUID CONDITION	ABNORMAL



Machine Id
JOHN DEERE 310E 1DW310EXCNF714251
Component
Diesel Engine
Fluid
JOHN DEERE ENGINE OIL PLUS 50 II 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 recommend an early resample to monitor this condition.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		JR0212758	JR0202421	JR0190897
Sample Date		Client Info		29 May 2024	05 Mar 2024	01 Dec 2023
Machine Age	hrs	Client Info		2965	2459	2020
Oil Age	hrs	Client Info		506	439	0
Filter Age	hrs	Client Info		506	439	0
Oil Changed		Client Info		Changed	Changed	Changed
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				ABNORMAL	ABNORMAL	NORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>51	18	19	18
Chromium	ppm	ASTM D5185m	>11	<1	<1	<1
Nickel	ppm	ASTM D5185m	>5	2	3	1
Titanium	ppm	ASTM D5185m		<1	0	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>31	5	4	4
Lead	ppm	ASTM D5185m	>26	<1	0	0
Copper	ppm	ASTM D5185m	>26	2	3	4
Tin	ppm	ASTM D5185m	>4	<1	0	0
Vanadium	ppm	ASTM D5185m		<1	<1	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

Sodium and/or potassium levels remain high.

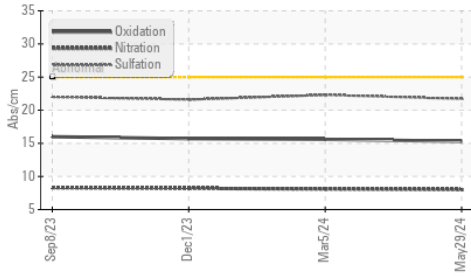
Silicon	ppm	ASTM D5185m	>22	8	8	7
Potassium	ppm	ASTM D5185m	>20	▲ 65	▲ 111	13
Fuel		WC Method	>2.1	<1.0	<1.0	<1.0
Water		WC Method	>0.21	NEG	NEG	NEG
Glycol	%	*ASTM D2982		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>3	0.4	0.3	0.3
Nitration	Abs/cm	*ASTM D7624	>20	8.0	8.1	8.2
Sulfation	Abs/.1mm	*ASTM D7415	>30	21.7	22.3	21.6
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

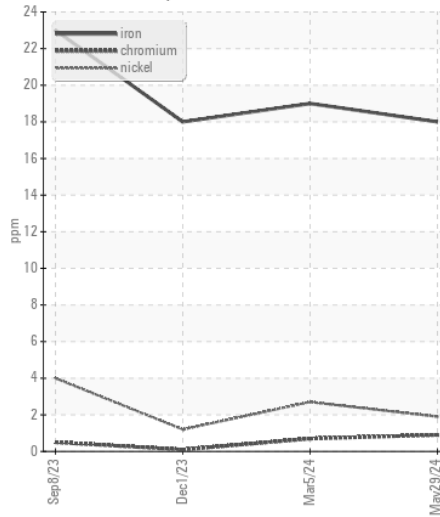
The BN result indicates that there is suitable alkalinity remaining in the oil.

Sodium	ppm	ASTM D5185m	>31	▲ 66	▲ 137	16
Boron	ppm	ASTM D5185m		261	232	235
Barium	ppm	ASTM D5185m		<1	0	3
Molybdenum	ppm	ASTM D5185m		275	274	263
Manganese	ppm	ASTM D5185m		<1	<1	0
Magnesium	ppm	ASTM D5185m		839	835	797
Calcium	ppm	ASTM D5185m		1408	1448	1377
Phosphorus	ppm	ASTM D5185m		961	891	809
Zinc	ppm	ASTM D5185m		1143	1038	1035
Sulfur	ppm	ASTM D5185m		3401	3028	3485
Oxidation	Abs/.1mm	*ASTM D7414	>25	15.3	15.6	15.7
Base Number (BN)	mg KOH/g	ASTM D2896	13.6	8.8	8.6	9.0
Visc @ 100°C	cSt	ASTM D445	15.4	13.5	13.5	13.7

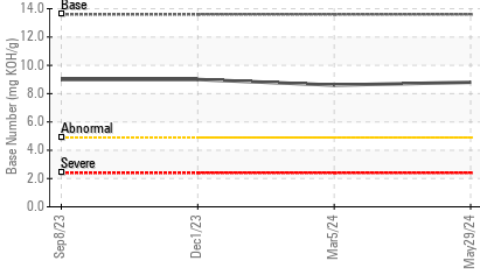
FT-IR (Direct Trend)



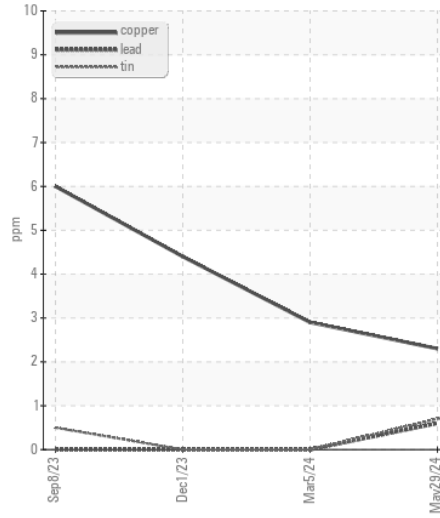
Ferrous Alloys



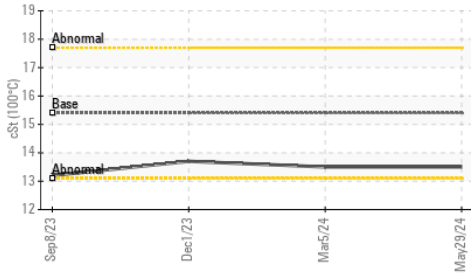
Base Number



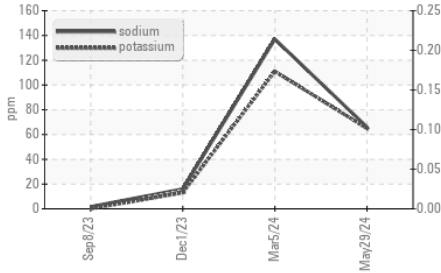
Non-ferrous Metals



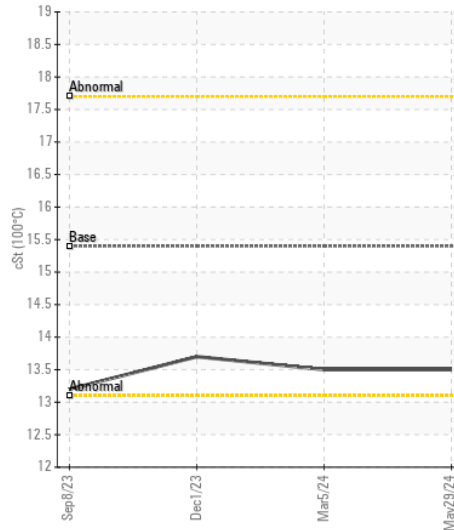
Viscosity @ 100°C



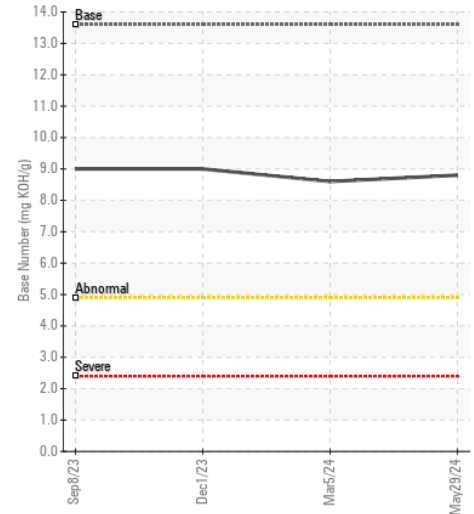
Glycol Contamination



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513

Sample No. : JR0212758

Lab Number : 06197459

Unique Number : 11059582

Test Package : CONST (Additional Tests: Glycol, TBN)

Received : 03 Jun 2024

Tested : 05 Jun 2024

Diagnosed : 05 Jun 2024 - Sean Felton

JRE - GARNER

4161 AUBURN CHURCH RD

GARNER, NC

US 27529

Contact: RALEIGH SHOP

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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)