



WEAR	<b>NORMAL</b>
CONTAMINATION	<b>NORMAL</b>
FLUID CONDITION	<b>NORMAL</b>

Machine Id  
**EPIROC D60 G18SED0760**  
 Component  
**Diesel Engine**  
 Fluid  
**JOHN DEERE ENGINE OIL PLUS 50 II 15W40 (--- GAL)**

### RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>JR0209692</b>	JR0202496	JR0197310
Sample Date		Client Info		<b>16 May 2024</b>	20 Feb 2024	16 Jan 2024
Machine Age	hrs	Client Info		<b>10463</b>	9966	9736
Oil Age	hrs	Client Info		<b>497</b>	230	564
Filter Age	hrs	Client Info		<b>497</b>	230	564
Oil Changed		Client Info		<b>Changed</b>	Changed	Changed
Filter Changed		Client Info		<b>Changed</b>	Changed	Changed
Sample Status				<b>NORMAL</b>	NORMAL	NORMAL

### WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	<b>9</b>	8	9
Chromium	ppm	ASTM D5185m	>20	<b>&lt;1</b>	<1	0
Nickel	ppm	ASTM D5185m	>4	<b>&lt;1</b>	0	0
Titanium	ppm	ASTM D5185m		<b>&lt;1</b>	<1	0
Silver	ppm	ASTM D5185m	>3	<b>&lt;1</b>	0	0
Aluminum	ppm	ASTM D5185m	>20	<b>6</b>	3	3
Lead	ppm	ASTM D5185m	>40	<b>2</b>	0	1
Copper	ppm	ASTM D5185m	>330	<b>3</b>	3	5
Tin	ppm	ASTM D5185m	>15	<b>1</b>	<1	0
Vanadium	ppm	ASTM D5185m		<b>&lt;1</b>	<1	<1
White Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE

### CONTAMINATION

There is no indication of any contamination in the oil.

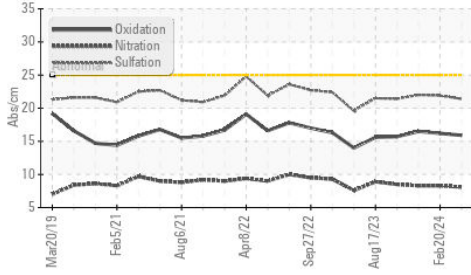
Silicon	ppm	ASTM D5185m	>25	<b>9</b>	2	8
Potassium	ppm	ASTM D5185m	>20	<b>3</b>	0	1
Fuel		WC Method	>5	<b>&lt;1.0</b>	<1.0	<1.0
Water		WC Method	>0.2	<b>NEG</b>	NEG	NEG
Glycol		WC Method		<b>NEG</b>	NEG	NEG
Soot %	%	*ASTM D7844	>3	<b>0.2</b>	0.2	0.2
Nitration	Abs/cm	*ASTM D7624	>20	<b>8.1</b>	8.3	8.3
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>21.4</b>	21.9	22.0
Silt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Debris	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Appearance	scalar	*Visual	NORML	<b>NORML</b>	NORML	NORML
Odor	scalar	*Visual	NORML	<b>NORML</b>	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	<b>NEG</b>	NEG	NEG

### FLUID CONDITION

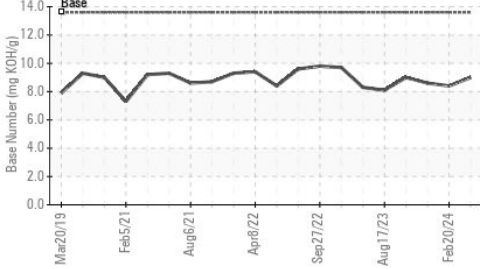
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sodium	ppm	ASTM D5185m		<b>2</b>	2	1
Boron	ppm	ASTM D5185m		<b>267</b>	224	215
Barium	ppm	ASTM D5185m		<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185m		<b>263</b>	236	241
Manganese	ppm	ASTM D5185m		<b>&lt;1</b>	<1	<1
Magnesium	ppm	ASTM D5185m		<b>851</b>	762	833
Calcium	ppm	ASTM D5185m		<b>1424</b>	1465	1564
Phosphorus	ppm	ASTM D5185m		<b>921</b>	874	873
Zinc	ppm	ASTM D5185m		<b>1069</b>	1024	1148
Sulfur	ppm	ASTM D5185m		<b>3254</b>	2825	2976
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>15.9</b>	16.2	16.5
Base Number (BN)	mg KOH/g	ASTM D2896	13.6	<b>9.0</b>	8.4	8.6
Visc @ 100°C	cSt	ASTM D445	15.4	<b>13.7</b>	13.6	13.8

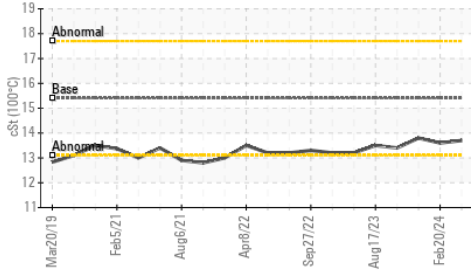
FT-IR (Direct Trend)



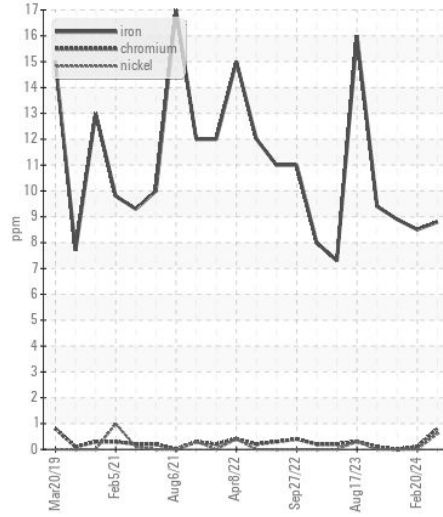
Base Number



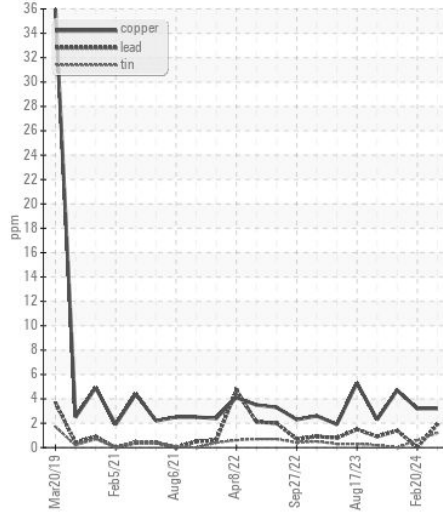
Viscosity @ 100°C



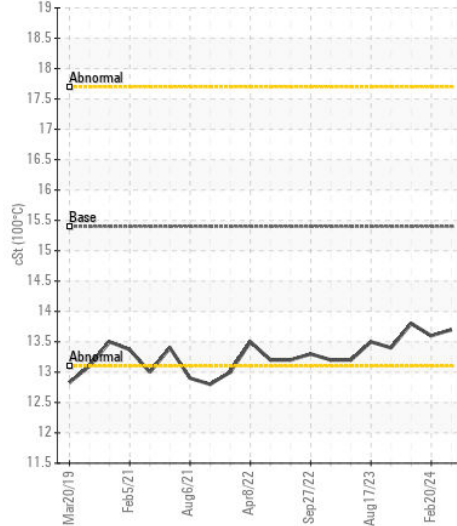
Ferrous Alloys



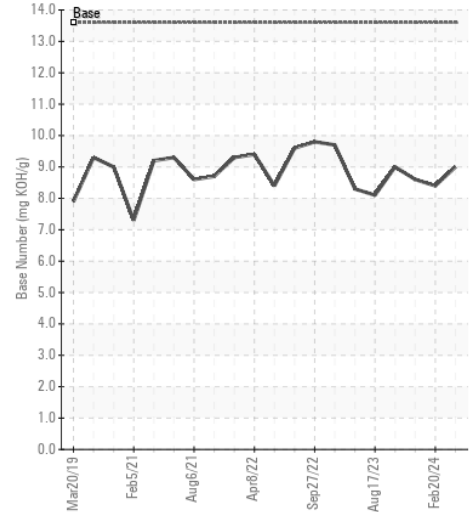
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
 Sample No. : JR0209692 Received : 21 May 2024  
 Lab Number : 06185944 Tested : 22 May 2024  
 Unique Number : 11042696 Diagnosed : 22 May 2024 - Wes Davis  
 Test Package : CONST ( Additional Tests: TBN )

RDU - MARTIN MARIETTA

PO BOX 30013  
 RALEIGH, NC  
 US 27622

Contact: Josh Robar  
 josh.robar@martinmarietta.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)

T:  
 F: