



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



Machine Id  
**MACK GRANITE V108**  
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>JR0206226</b>	JR0206201	JR0189086
Sample Date		Client Info		<b>27 Jun 2024</b>	11 Apr 2024	12 Dec 2023
Machine Age	hrs	Client Info		<b>10130</b>	9761	9498
Oil Age	hrs	Client Info		<b>369</b>	263	326
Filter Age	hrs	Client Info		<b>369</b>	263	326
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	>120	<b>6</b>	4	6
Chromium	ppm	ASTM D5185m	>20	<b>&lt;1</b>	<1	<1
Nickel	ppm	ASTM D5185m	>5	<b>&lt;1</b>	0	0
Titanium	ppm	ASTM D5185m	>2	<b>&lt;1</b>	0	<1
Silver	ppm	ASTM D5185m	>2	<b>&lt;1</b>	0	0
Aluminum	ppm	ASTM D5185m	>20	<b>5</b>	5	5
Lead	ppm	ASTM D5185m	>40	<b>&lt;1</b>	0	0
Copper	ppm	ASTM D5185m	>330	<b>&lt;1</b>	0	<1
Tin	ppm	ASTM D5185m	>15	<b>&lt;1</b>	0	0
Vanadium	ppm	ASTM D5185m		<b>&lt;1</b>	0	<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.

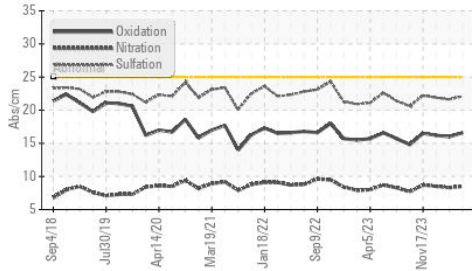
Silicon	ppm	ASTM D5185m	>25	<b>7</b>	7	8
Potassium	ppm	ASTM D5185m	>20	<b>3</b>	3	2
Fuel		WC Method	>3.0	<b>&lt;1.0</b>	<1.0	<1.0
Water		WC Method	>0.2	<b>NEG</b>	NEG	NEG
Glycol		WC Method		<b>NEG</b>	NEG	NEG
Soot %	%	*ASTM D7844	>4	<b>0.2</b>	0.2	0.2
Nitration	Abs/cm	*ASTM D7624	>20	<b>8.5</b>	8.3	8.5
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>22.1</b>	21.6	21.9
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

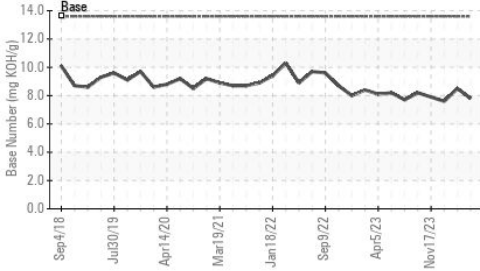
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sodium	ppm	ASTM D5185m		<b>3</b>	2	4
Boron	ppm	ASTM D5185m		<b>192</b>	220	198
Barium	ppm	ASTM D5185m		<b>1</b>	0	12
Molybdenum	ppm	ASTM D5185m		<b>261</b>	252	235
Manganese	ppm	ASTM D5185m		<b>&lt;1</b>	0	0
Magnesium	ppm	ASTM D5185m		<b>771</b>	787	738
Calcium	ppm	ASTM D5185m		<b>1352</b>	1425	1152
Phosphorus	ppm	ASTM D5185m		<b>787</b>	964	694
Zinc	ppm	ASTM D5185m		<b>1003</b>	1092	986
Sulfur	ppm	ASTM D5185m		<b>2410</b>	2967	2603
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>16.6</b>	16.0	16.2
Base Number (BN)	mg KOH/g	ASTM D2896	13.6	<b>7.8</b>	8.5	7.6
Visc @ 100°C	cSt	ASTM D445	15.4	<b>13.6</b>	13.5	13.3

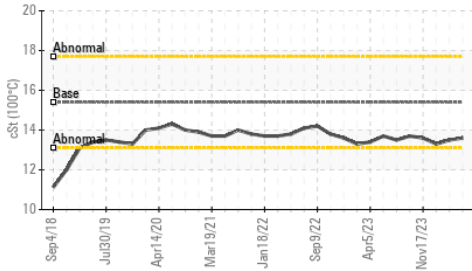
**FT-IR (Direct Trend)**



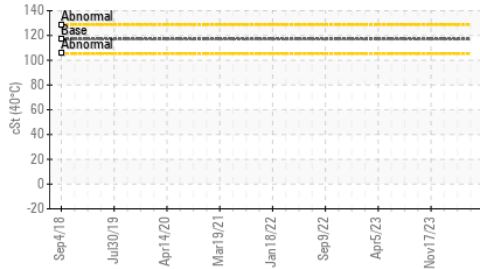
**Base Number**



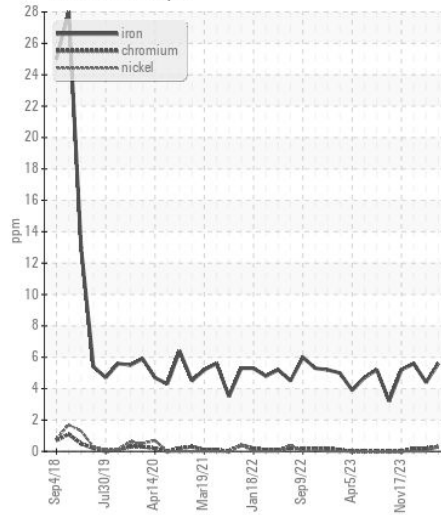
**Viscosity @ 100°C**



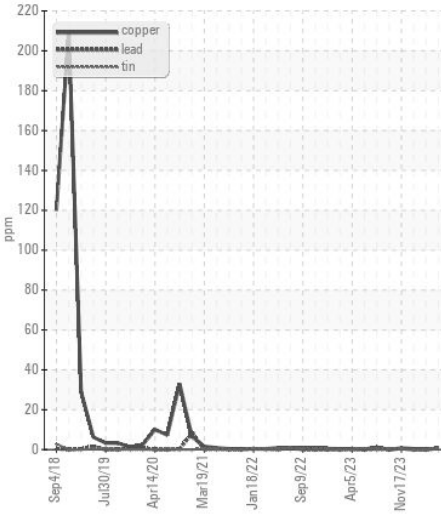
**Viscosity @ 40°C**



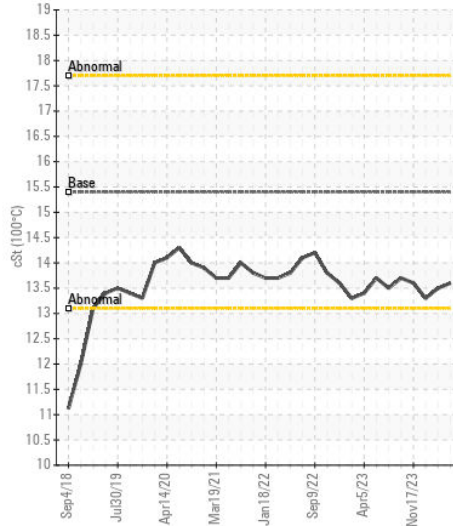
**Ferrous Alloys**



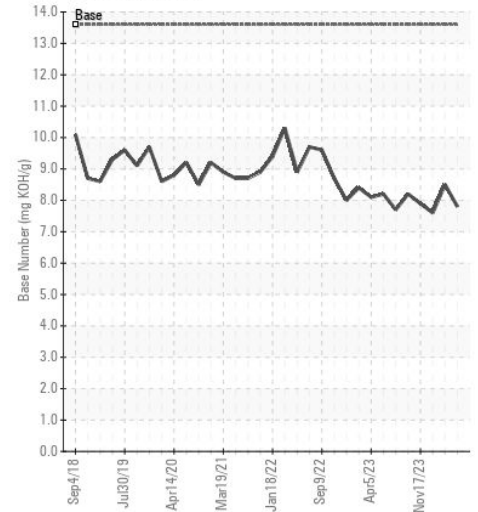
**Non-ferrous Metals**



**Viscosity @ 100°C**



**Base Number**



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : JR0206226 **Received** : 02 Jul 2024  
**Lab Number** : 06225819 **Tested** : 03 Jul 2024  
**Unique Number** : 11109312 **Diagnosed** : 03 Jul 2024 - Jonathan Hester  
**Test Package** : CONST ( Additional Tests: KV40, TBN )

**MATTHEWS CONSTRUCTION**  
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 ROCK HILL, SC  
 US 29732  
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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)