



# OIL ANALYSIS REPORT

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

Machine Id  
**FREIGHTLINER 2200**  
Component  
**Diesel Engine**  
Fluid  
**ROYAL PURPLE MOTOR OIL 15W40 (--- QTS)**

## RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>WC0720101</b>	WC0720050	WC0720183
Sample Date		Client Info		<b>09 May 2024</b>	08 Feb 2024	03 Oct 2023
Machine Age	mls	Client Info		<b>393365</b>	347207	290305
Oil Age	mls	Client Info		<b>100000</b>	50000	100000
Filter Age	mls	Client Info		<b>50000</b>	50000	50000
Oil Changed		Client Info		<b>Changed</b>	Not Changed	Changed
Filter Changed		Client Info		<b>Changed</b>	Changed	Changed
Sample Status				<b>NORMAL</b>	NORMAL	ATTENTION

## WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>200	<b>81</b>	49	74
Chromium	ppm	ASTM D5185m	>6	<b>2</b>	1	2
Nickel	ppm	ASTM D5185m	>3	<b>1</b>	<1	<1
Titanium	ppm	ASTM D5185m	>2	<b>&lt;1</b>	<1	<1
Silver	ppm	ASTM D5185m	>2	<b>&lt;1</b>	0	0
Aluminum	ppm	ASTM D5185m	>50	<b>11</b>	9	13
Lead	ppm	ASTM D5185m	>10	<b>0</b>	0	0
Copper	ppm	ASTM D5185m	>50	<b>13</b>	9	22
Tin	ppm	ASTM D5185m	>6	<b>1</b>	0	<1
Vanadium	ppm	ASTM D5185m		<b>0</b>	0	0
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.

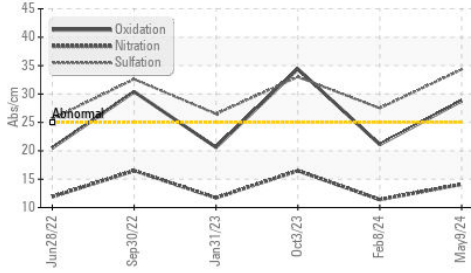
Silicon	ppm	ASTM D5185m	>50	<b>12</b>	10	12
Potassium	ppm	ASTM D5185m	>20	<b>20</b>	12	23
Fuel		WC Method	>3.0	<b>&lt;1.0</b>	<1.0	<1.0
Water		WC Method	>0.2	<b>NEG</b>	NEG	NEG
Glycol		WC Method		<b>NEG</b>	NEG	NEG
Soot %	%	*ASTM D7844	>3	<b>2.2</b>	1.5	2.4
Nitration	Abs/cm	*ASTM D7624	>20	<b>14.1</b>	11.4	16.5
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>34.3</b>	27.5	33.0
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

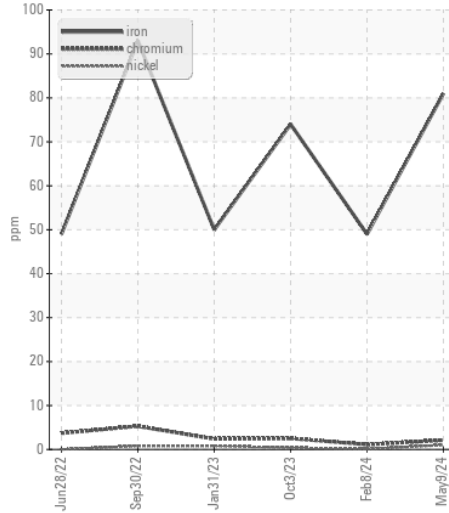
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sodium	ppm	ASTM D5185m		<b>4</b>	2	4
Boron	ppm	ASTM D5185m	0	<b>&lt;1</b>	0	4
Barium	ppm	ASTM D5185m	0	<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185m	100	<b>7</b>	8	49
Manganese	ppm	ASTM D5185m		<b>2</b>	<1	<1
Magnesium	ppm	ASTM D5185m	60	<b>126</b>	132	735
Calcium	ppm	ASTM D5185m	3050	<b>2575</b>	2604	1592
Phosphorus	ppm	ASTM D5185m	1050	<b>1070</b>	1037	968
Zinc	ppm	ASTM D5185m	1200	<b>1236</b>	1232	1262
Sulfur	ppm	ASTM D5185m	12500	<b>3944</b>	3634	2530
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>28.8</b>	21.1	34.4
Base Number (BN)	mg KOH/g	ASTM D2896	10.5	<b>3.9</b>	4.8	3.4
Visc @ 100°C	cSt	ASTM D445	14.9	<b>14.7</b>	13.7	14.5

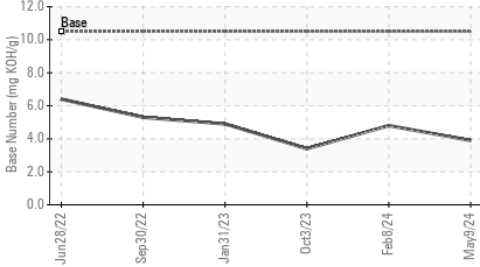
**FT-IR (Direct Trend)**



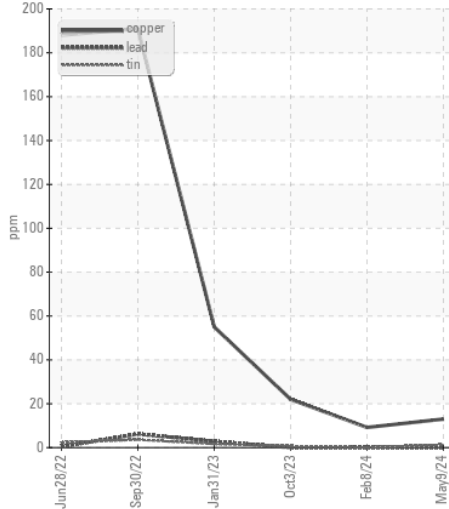
**Ferrous Alloys**



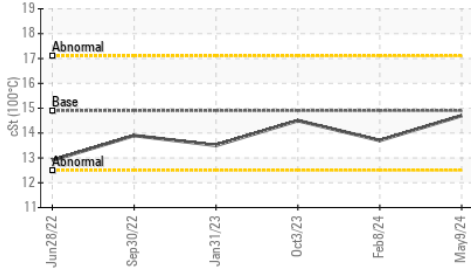
**Base Number**



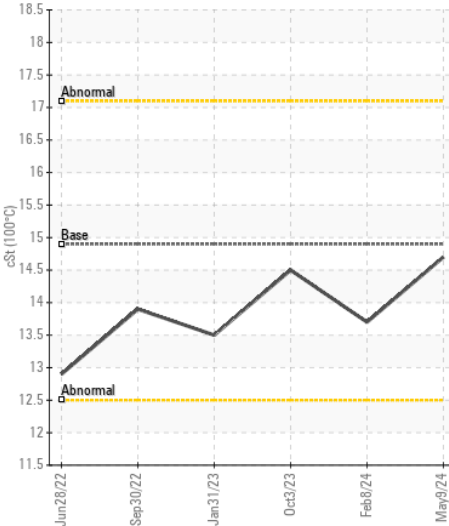
**Non-ferrous Metals**



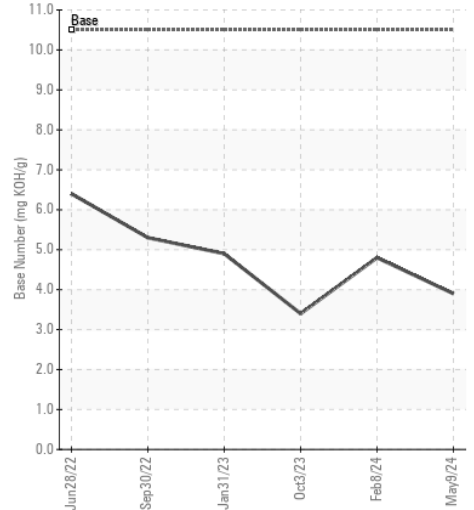
**Viscosity @ 100°C**



**Viscosity @ 100°C**



**Base Number**



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : WC0720101  
**Lab Number** : 06213295  
**Unique Number** : 11086159  
**Test Package** : FLEET

**Received** : 18 Jun 2024  
**Tested** : 19 Jun 2024  
**Diagnosed** : 20 Jun 2024 - Sean Felton

**DILLON TRANSPORTATION**  
 974 TN WALTZ PARKWAY  
 ASHLAND CITY, TN  
 US 37015

Contact: MASON NICHOLSON  
 M.NICHOLSON@DILLONTRANSPORTATION.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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