



# OIL ANALYSIS REPORT

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

Area  
**TRUCK - URBAN**  
Machine Id  
**FREIGHTLINER 104**  
Component  
**Diesel Engine**  
Fluid  
**SHELL Rotella T5 15W-40 (10 GAL)**

## 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		<b>PE0003158</b>	PE0002396	PE0001361
Sample Date		Client Info		<b>24 Apr 2024</b>	10 Aug 2023	23 May 2023
Machine Age	hrs	Client Info		<b>5463</b>	4064	3633
Oil Age	hrs	Client Info		<b>465</b>	431	613
Filter Age	hrs	Client Info		<b>465</b>	431	613
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	>80	<b>12</b>	9	13
Chromium	ppm	ASTM D5185m	>5	<b>&lt;1</b>	<1	1
Nickel	ppm	ASTM D5185m	>2	<b>&lt;1</b>	<1	<1
Titanium	ppm	ASTM D5185m		<b>0</b>	0	<1
Silver	ppm	ASTM D5185m	>3	<b>&lt;1</b>	0	<1
Aluminum	ppm	ASTM D5185m	>30	<b>7</b>	6	7
Lead	ppm	ASTM D5185m	>30	<b>0</b>	<1	0
Copper	ppm	ASTM D5185m	>150	<b>4</b>	3	4
Tin	ppm	ASTM D5185m	>5	<b>&lt;1</b>	0	<1
Vanadium	ppm	ASTM D5185m		<b>0</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.

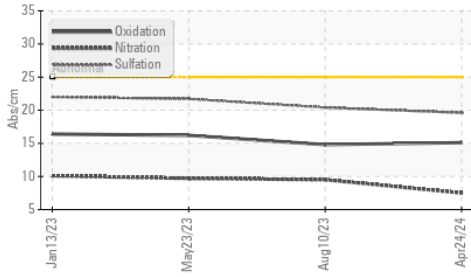
Silicon	ppm	ASTM D5185m	>20	<b>4</b>	5	5
Potassium	ppm	ASTM D5185m	>20	<b>4</b>	3	7
Fuel		WC Method	>5	<b>&lt;1.0</b>	<1.0	<1.0
Water		WC Method	>0.2	<b>NEG</b>	NEG	NEG
Glycol		WC Method		<b>NEG</b>	NEG	NEG
Soot %	%	*ASTM D7844	>3	<b>0.4</b>	0.6	0.6
Nitration	Abs/cm	*ASTM D7624	>20	<b>7.5</b>	9.5	9.7
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>19.6</b>	20.4	21.7
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

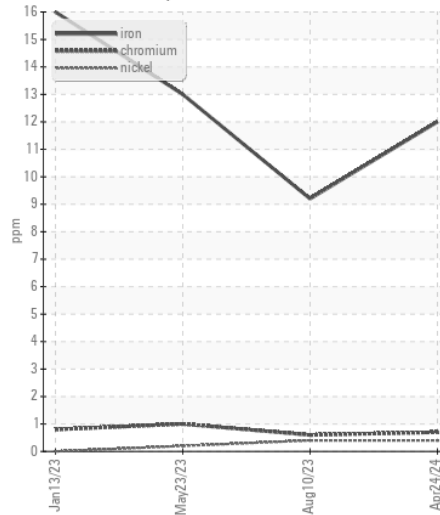
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sodium	ppm	ASTM D5185m		<b>2</b>	<1	3
Boron	ppm	ASTM D5185m		<b>13</b>	20	21
Barium	ppm	ASTM D5185m		<b>0</b>	2	0
Molybdenum	ppm	ASTM D5185m		<b>55</b>	87	79
Manganese	ppm	ASTM D5185m		<b>&lt;1</b>	0	<1
Magnesium	ppm	ASTM D5185m		<b>787</b>	57	136
Calcium	ppm	ASTM D5185m		<b>1307</b>	2115	2042
Phosphorus	ppm	ASTM D5185m		<b>993</b>	994	1021
Zinc	ppm	ASTM D5185m		<b>1184</b>	1176	1294
Sulfur	ppm	ASTM D5185m		<b>3467</b>	3476	3885
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>15.1</b>	14.8	16.2
Base Number (BN)	mg KOH/g	ASTM D2896	10	<b>8.8</b>	5.8	6.1
Visc @ 100°C	cSt	ASTM D445	14.9	<b>13.3</b>	14.5	14.6

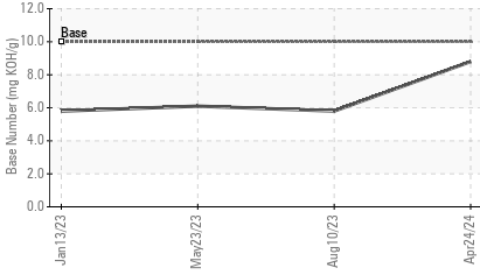
**FT-IR (Direct Trend)**



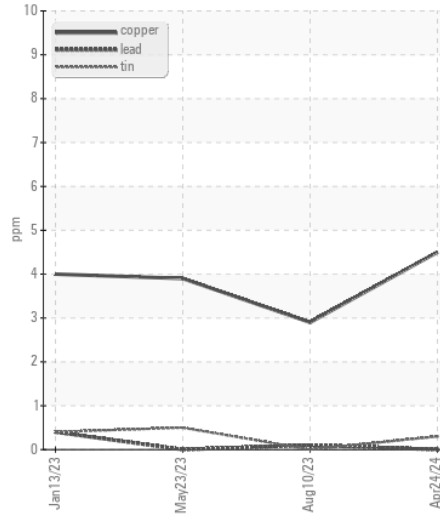
**Ferrous Alloys**



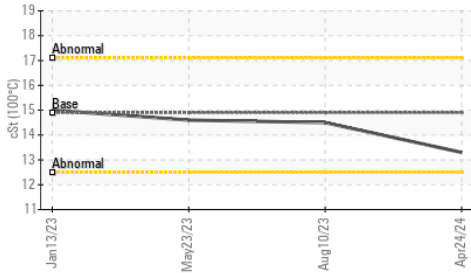
**Base Number**



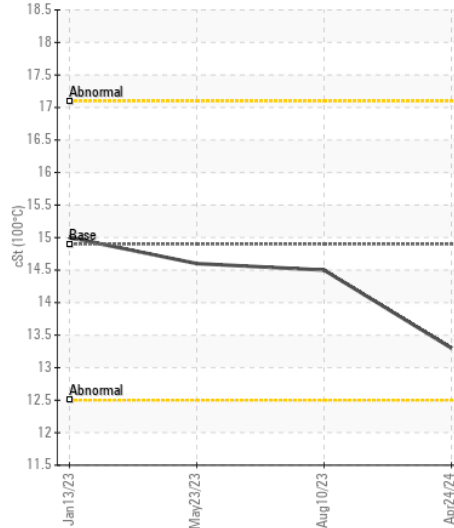
**Non-ferrous Metals**



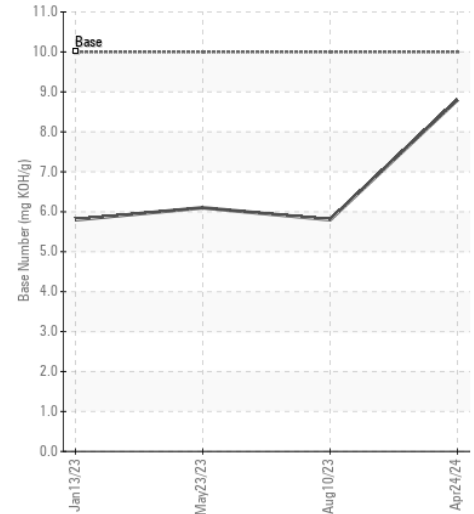
**Viscosity @ 100°C**



**Viscosity @ 100°C**



**Base Number**



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : PE0003158  
**Lab Number** : 06212755  
**Unique Number** : 11085619  
**Test Package** : CONST ( Additional Tests: FT-IR, ICP, KV100, SCREEN, TBN )

**Received** : 17 Jun 2024  
**Tested** : 19 Jun 2024  
**Diagnosed** : 19 Jun 2024 - Angela Borella

**PetroCard - Aberdeen**  
 110 Commerce St  
 Aberdeen, WA  
 US 98520

Contact: Sean McNealley  
 smcnealley@petrocard.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: