



OIL ANALYSIS REPORT

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

Area  
**TRUCK - URBAN**  
Machine Id  
**WESTERN STAR M136**  
Component  
**Diesel Engine**  
Fluid  
**SHELL Rotella T5 15W-40 (7 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		<b>PE0003327</b>	PE0003275	PE0002378
Sample Date		Client Info		<b>17 May 2024</b>	30 Jan 2024	08 Dec 2023
Machine Age	hrs	Client Info		<b>15784</b>	14577	13820
Oil Age	hrs	Client Info		<b>674</b>	757	760
Filter Age	hrs	Client Info		<b>674</b>	757	760
Oil Changed		Client Info		<b>Changed</b>	Changed	Changed
Filter Changed		Client Info		<b>Changed</b>	Changed	Changed
Sample Status				<b>ABNORMAL</b>	ABNORMAL	SEVERE

**WEAR**

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	<b>23</b>	13	26
Chromium	ppm	ASTM D5185m	>20	<b>&lt;1</b>	<1	1
Nickel	ppm	ASTM D5185m	>4	<b>0</b>	0	0
Titanium	ppm	ASTM D5185m		<b>&lt;1</b>	0	<1
Silver	ppm	ASTM D5185m	>3	<b>&lt;1</b>	0	0
Aluminum	ppm	ASTM D5185m	>20	<b>6</b>	5	6
Lead	ppm	ASTM D5185m	>40	<b>1</b>	0	0
Copper	ppm	ASTM D5185m	>330	<b>&lt;1</b>	0	2
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**

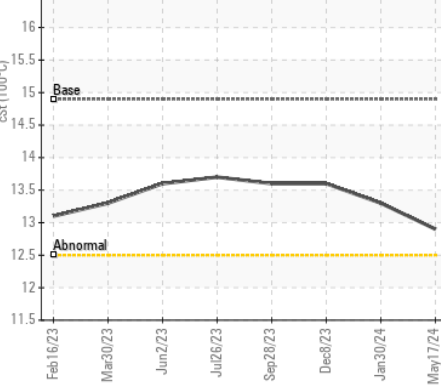
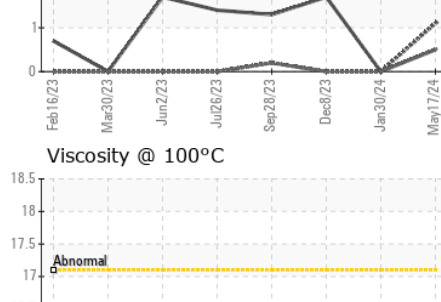
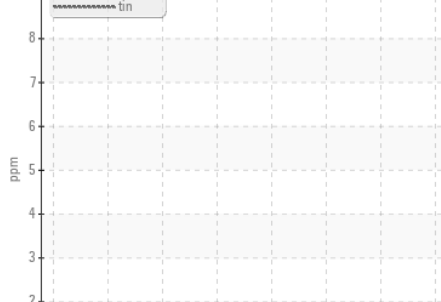
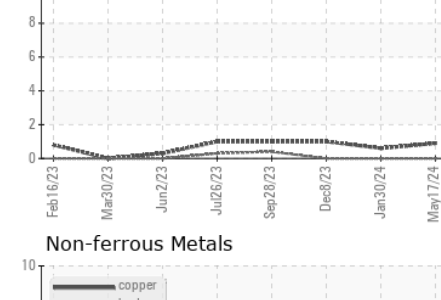
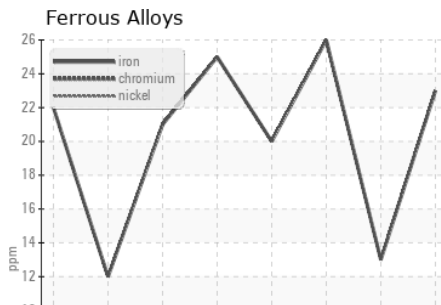
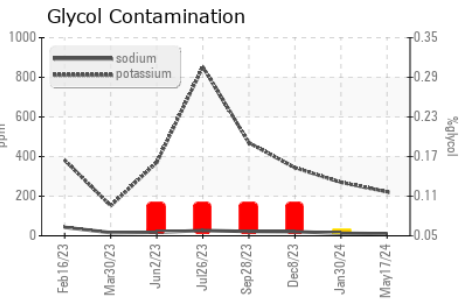
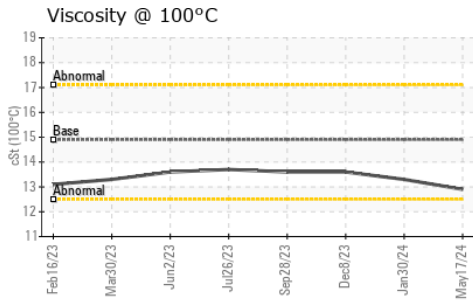
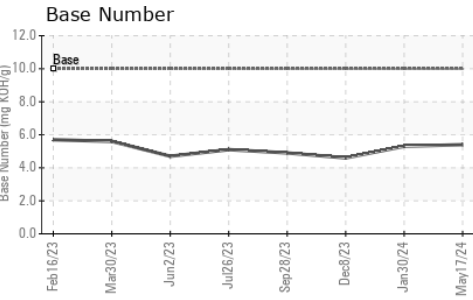
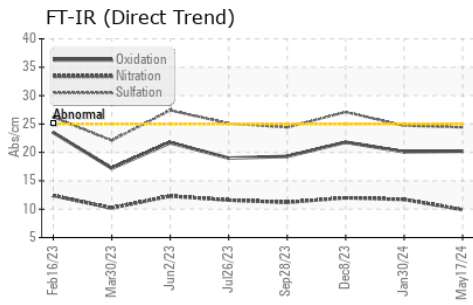
Sodium and/or potassium levels are high.

Silicon	ppm	ASTM D5185m	>25	<b>9</b>	4	6
Potassium	ppm	ASTM D5185m	>20	<b>▲ 222</b>	▲ 270	▲ 344
Fuel		WC Method	>5	<b>&lt;1.0</b>	<1.0	<1.0
Water		WC Method	>0.2	<b>NEG</b>	NEG	NEG
Glycol	%	*ASTM D2982		<b>NEG</b>	▲ 0.06	▲ 0.10
Soot %	%	*ASTM D7844	>3	<b>0.7</b>	0.8	0.9
Nitration	Abs/cm	*ASTM D7624	>20	<b>9.9</b>	11.7	12.0
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>24.4</b>	24.7	27.1
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.

Sodium	ppm	ASTM D5185m		<b>11</b>	13	21
Boron	ppm	ASTM D5185m		<b>168</b>	26	19
Barium	ppm	ASTM D5185m		<b>&lt;1</b>	0	0
Molybdenum	ppm	ASTM D5185m		<b>81</b>	81	85
Manganese	ppm	ASTM D5185m		<b>&lt;1</b>	<1	<1
Magnesium	ppm	ASTM D5185m		<b>270</b>	27	37
Calcium	ppm	ASTM D5185m		<b>1591</b>	2011	2089
Phosphorus	ppm	ASTM D5185m		<b>1006</b>	918	945
Zinc	ppm	ASTM D5185m		<b>1126</b>	1108	1122
Sulfur	ppm	ASTM D5185m		<b>3504</b>	3447	3527
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>20.2</b>	20.1	21.8
Base Number (BN)	mg KOH/g	ASTM D2896	10	<b>5.4</b>	5.3	4.6
Visc @ 100°C	cSt	ASTM D445	14.9	<b>12.9</b>	13.3	13.6



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : PE0003327  
**Lab Number** : 06194844  
**Unique Number** : 11056967  
**Test Package** : CONST ( Additional Tests: FT-IR, ICP, KV100, SCREEN, TBN )

**Received** : 29 May 2024  
**Tested** : 31 May 2024  
**Diagnosed** : 31 May 2024 - Jonathan Hester

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)

**PetroCard - Aberdeen**  
 110 Commerce St  
 Aberdeen, WA  
 US 98520  
 Contact: Sean McNealley  
 smcnealley@petrocard.com