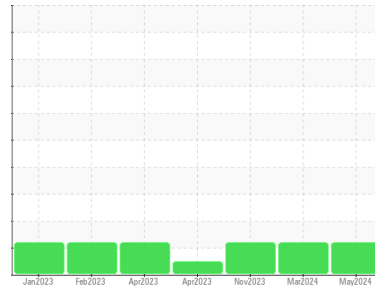




# OIL ANALYSIS REPORT

Sample Rating Trend



GLYCOL



Area  
**TRUCK - URBAN**  
 Machine Id  
**WESTERN STAR M127**  
 Component  
**Diesel Engine**  
 Fluid  
**SHELL Rotella T5 15W-40 (7 GAL)**

## DIAGNOSIS

### 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.

### Wear

All component wear rates are normal.

### Contamination

Sodium and/or potassium levels are high.

### Fluid Condition

The BN result indicates that there is suitable alkalinity remaining in the oil.

## SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		<b>PE0003328</b>	PE0003279	PE0002383
Sample Date	Client Info		<b>20 May 2024</b>	08 Mar 2024	28 Nov 2023
Machine Age	hrs	Client Info	<b>25096</b>	24570	24283
Oil Age	hrs	Client Info	<b>526</b>	287	513
Oil Changed	Client Info		<b>Changed</b>	Changed	Changed
Sample Status			<b>ABNORMAL</b>	ABNORMAL	ABNORMAL

## CONTAMINATION

	method	limit/base	current	history1	history2
Fuel	WC Method	>5	<b>&lt;1.0</b>	<1.0	<1.0
Water	WC Method	>0.2	<b>NEG</b>	NEG	NEG

## WEAR METALS

	method	limit/base	current	history1	history2	
Iron	ppm	ASTM D5185m	>100	<b>9</b>	14	6
Chromium	ppm	ASTM D5185m	>20	<b>&lt;1</b>	2	<1
Nickel	ppm	ASTM D5185m	>4	<b>0</b>	2	0
Titanium	ppm	ASTM D5185m		<b>&lt;1</b>	<1	0
Silver	ppm	ASTM D5185m	>3	<b>&lt;1</b>	<1	0
Aluminum	ppm	ASTM D5185m	>20	<b>5</b>	8	3
Lead	ppm	ASTM D5185m	>40	<b>1</b>	1	0
Copper	ppm	ASTM D5185m	>330	<b>1</b>	2	<1
Tin	ppm	ASTM D5185m	>15	<b>&lt;1</b>	1	0
Vanadium	ppm	ASTM D5185m		<b>&lt;1</b>	<1	0
Cadmium	ppm	ASTM D5185m		<b>&lt;1</b>	1	0

## ADDITIVES

	method	limit/base	current	history1	history2	
Boron	ppm	ASTM D5185m		<b>18</b>	23	20
Barium	ppm	ASTM D5185m		<b>0</b>	0	2
Molybdenum	ppm	ASTM D5185m		<b>80</b>	89	79
Manganese	ppm	ASTM D5185m		<b>&lt;1</b>	1	0
Magnesium	ppm	ASTM D5185m		<b>24</b>	18	35
Calcium	ppm	ASTM D5185m		<b>2324</b>	2221	1929
Phosphorus	ppm	ASTM D5185m		<b>1039</b>	1141	906
Zinc	ppm	ASTM D5185m		<b>1213</b>	1237	1065
Sulfur	ppm	ASTM D5185m		<b>4150</b>	4333	3851

## CONTAMINANTS

	method	limit/base	current	history1	history2	
Silicon	ppm	ASTM D5185m	>25	<b>6</b>	9	8
Sodium	ppm	ASTM D5185m		<b>4</b>	6	4
Potassium	ppm	ASTM D5185m	>20	<b>▲ 105</b>	▲ 129	▲ 135
Glycol	%	*ASTM D2982		<b>NEG</b>	NEG	NEG

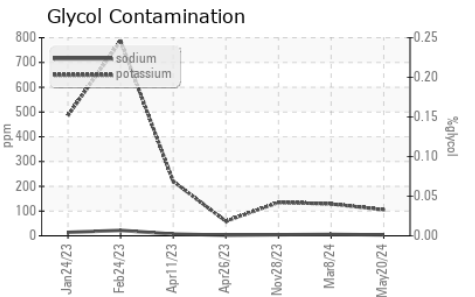
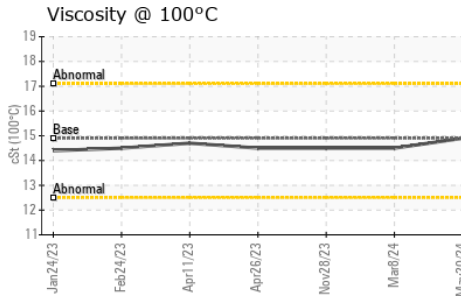
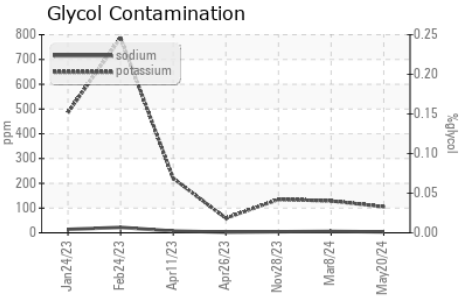
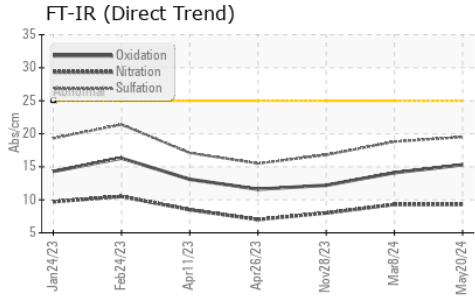
## INFRA-RED

	method	limit/base	current	history1	history2	
Soot %	%	*ASTM D7844	>3	<b>0.3</b>	0.3	0.3
Nitration	Abs/cm	*ASTM D7624	>20	<b>9.3</b>	9.3	8.0
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>19.5</b>	18.8	16.8

## FLUID DEGRADATION

	method	limit/base	current	history1	history2	
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>15.3</b>	14.1	12.2
Base Number (BN)	mg KOH/g	ASTM D2896	10	<b>6.2</b>	6.2	4.7

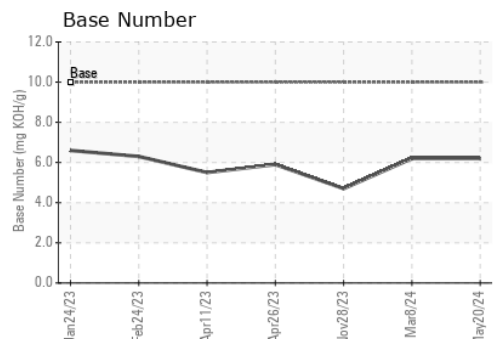
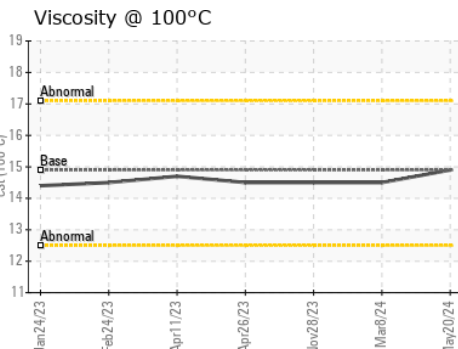
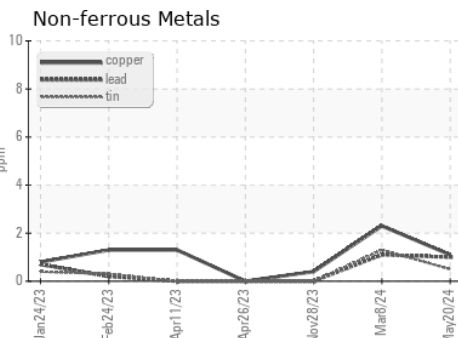
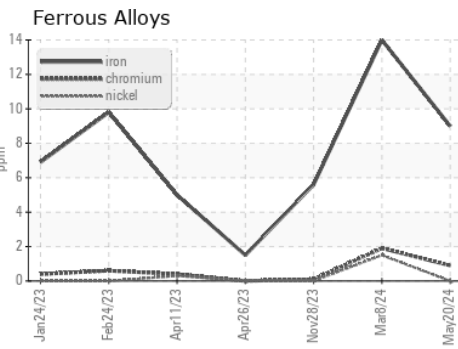
# OIL ANALYSIS REPORT



VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG

FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	14.9	14.5	14.5

### GRAPHS



**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : PE0003328 **Received** : 29 May 2024  
**Lab Number** : **06194845** **Tested** : 31 May 2024  
**Unique Number** : 11056968 **Diagnosed** : 31 May 2024 - Sean Felton  
**Test Package** : CONST ( Additional Tests: FT-IR, Glycol, ICP, KV100, SCREEN, TBN )  
 To discuss this sample report, contact Customer Service at 1-800-237-1369.

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

\* - 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)