

# **OIL ANALYSIS REPORT**

## Sample Rating Trend





Machine Id **4659M** Component **Diesel Engine** 

PETRO CANADA DURON SHP 15W40 (--- GAL)

## **DIAGNOSIS**

#### Recommendation

We advise that you check for possible 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.

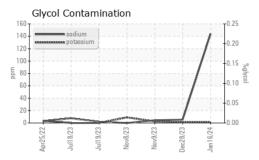
### Fluid Condition

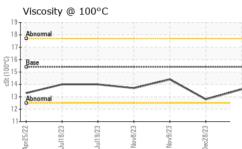
The BN result indicates that there is suitable alkalinity remaining in the oil.

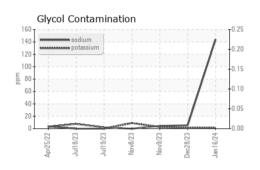
N SHP 15W40 (		Apr2022				
SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0109994	GFL0104395	GFL0059164
Sample Date		Client Info		16 Jan 2024	28 Dec 2023	09 Nov 2023
Machine Age	mls	Client Info		108906	108001	105803
Oil Age	mls	Client Info		0	108001	105803
Oil Changed		Client Info		Changed	N/A	Changed
Sample Status				ABNORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
WEAR METAL	.S	method	limit/base	current	history1	history2
ron	ppm	ASTM D5185m	>90	18	16	60
Chromium	ppm	ASTM D5185m	>20	<1	<1	2
Nickel	ppm	ASTM D5185m	>2	0	0	<1
Titanium	ppm	ASTM D5185m	>2	0	0	<1
Silver	ppm	ASTM D5185m	>2	0	0	<1
Aluminum	ppm	ASTM D5185m	>20	2	2	2
_ead	ppm	ASTM D5185m	>40	0	<1	<1
Copper	ppm	ASTM D5185m	>330	<1	<1	3
Tin	ppm	ASTM D5185m	>15	0	<1	0
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	12	2	6
Barium	ppm	ASTM D5185m	0	0	0	6
Molybdenum	ppm	ASTM D5185m	60	56	53	59
Manganese	ppm	ASTM D5185m	0	<1	<1	<1
Magnesium						
wagnesiam	ppm	ASTM D5185m	1010	866	864	838
-	ppm	ASTM D5185m ASTM D5185m		866 1007	864 950	838 1038
Calcium			1010			1038 920
Calcium Phosphorus	ppm	ASTM D5185m	1010 1070	1007	950	1038
Calcium Phosphorus Zinc	ppm	ASTM D5185m ASTM D5185m	1010 1070 1150	1007 810	950 977	1038 920
Calcium Phosphorus Zinc	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	1010 1070 1150 1270	1007 810 1081	950 977 1171	1038 920 1116
Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1010 1070 1150 1270 2060 limit/base	1007 810 1081 2537	950 977 1171 2696	1038 920 1116 2911
Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method	1010 1070 1150 1270 2060 limit/base	1007 810 1081 2537 current	950 977 1171 2696 history1	1038 920 1116 2911 history2
Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	1010 1070 1150 1270 2060 limit/base >25	1007 810 1081 2537 current	950 977 1171 2696 history1	1038 920 1116 2911 history2
Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m ASTM D5185m	1010 1070 1150 1270 2060 limit/base >25	1007 810 1081 2537 current 7	950 977 1171 2696 history1 3	1038 920 1116 2911 history2 7
Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm lTS ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m Method ASTM D5185m ASTM D5185m ASTM D5185m	1010 1070 1150 1270 2060 limit/base >25	1007 810 1081 2537 current 7 ▲ 144 2	950 977 1171 2696 history1 3 5	1038 920 1116 2911 history2 7 4
Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED	ppm ppm ppm ppm lTS ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m *ASTM D2982	1010 1070 1150 1270 2060 Iimit/base >25 >20	1007 810 1081 2537 current 7 ▲ 144 2 NEG	950 977 1171 2696 history1 3 5 1	1038 920 1116 2911 history2 7 4 3 NEG
Calcium Phosphorus Zinc Sulfur  CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED Soot %	ppm ppm ppm ppm ITS ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m *ASTM D2982 method	1010 1070 1150 1270 2060 Iimit/base >25 >20	1007 810 1081 2537 current 7 ▲ 144 2 NEG	950 977 1171 2696 history1 3 5 1 NEG	1038 920 1116 2911 history2 7 4 3 NEG
Calcium Phosphorus Zinc Sulfur  CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED Soot % Nitration	ppm ppm ppm ppm ITS ppm ppm ppm %	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m *ASTM D5185m *ASTM D2982 method *ASTM D7844	1010 1070 1150 1270 2060 limit/base >25 >20	1007 810 1081 2537 current 7 ▲ 144 2 NEG current 0.4	950 977 1171 2696 history1 3 5 1 NEG history1 0.5	1038 920 1116 2911 history2 7 4 3 NEG history2
Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED Soot % Nitration	ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m  method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m *ASTM D2982  method *ASTM D7844 *ASTM D7624 *ASTM D76145	1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >6 >20	1007 810 1081 2537 current 7 ▲ 144 2 NEG current 0.4 10.4	950 977 1171 2696 history1 3 5 1 NEG history1 0.5 11.0	1038 920 1116 2911 history2 7 4 3 NEG history2 1.2 14.9
Calcium Phosphorus Zinc Sulfur  CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED Soot % Nitration Sulfation	ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m  method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m *ASTM D2982  method *ASTM D7844 *ASTM D7624 *ASTM D76145	1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >6 >20 >30	1007 810 1081 2537 current 7 ▲ 144 2 NEG current 0.4 10.4 21.7	950 977 1171 2696 history1 3 5 1 NEG history1 0.5 11.0 21.9	1038 920 1116 2911 history2 7 4 3 NEG history2 1.2 14.9 28.9



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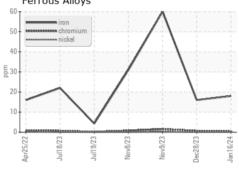


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

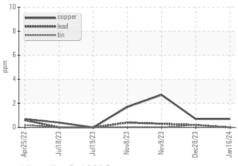
FLUID PROPI	ERIIE2	method	ilmit/base	current	nistory i	nistoryz
Visc @ 100°C	cSt	ASTM D445	15.4	13.6	12.8	14.4

### **GRAPHS**

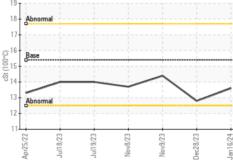
Ferrous Alloys

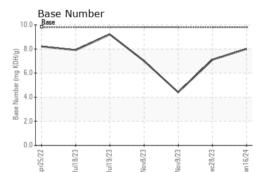
















Laboratory Sample No. Lab Number Unique Number

: 10846007

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : GFL0109994 Recieved : 06069330

Diagnosed Diagnostician

: 24 Jan 2024 : 26 Jan 2024 : Jonathan Hester

Test Package : FLEET ( Additional Tests: Glycol ) 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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Submitted By: Belal Dgheish