

# **OIL ANALYSIS REPORT**

## Sample Rating Trend





729045-361500

Component

Diesel Engine

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

# DIAGNOSIS

## Recommendation

Resample at the next service interval to monitor.

#### Wear

All component wear rates are normal.

## Contamination

There is no indication of any contamination in the oil

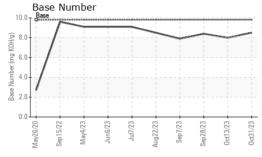
# **Fluid Condition**

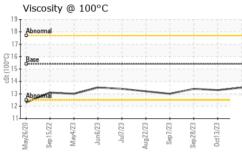
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORI	AOLT A N		limit/base	current	history1	history2
Sample Number	WATION	Client Info	— IIIIIII base		GFL0088240	GFL0088159
				GFL0088085 31 Oct 2023		
Sample Date Machine Age	hrs	Client Info		28210	13 Oct 2023 962	28 Sep 2023 0
Oil Age	hrs	Client Info		962	962	0
Oil Changed	1113	Client Info		Changed	N/A	N/A
Sample Status		Client iiilo		NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>120	3	6	6
Chromium	ppm	ASTM D5185m	>20	0	0	0
Nickel	ppm	ASTM D5185m	>5	0	3	2
Titanium	ppm	ASTM D5185m	>2	0	<1	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>20	<1	2	7
Lead	ppm	ASTM D5185m	>40	0	0	<1
Copper	ppm	ASTM D5185m	>330	0	<1	<1
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	0	0	0
Barium		ASTM D5185m	0	0	0	0
Danum	ppm	/ TO TIVI DO TOOTII		-		
Molybdenum	ppm	ASTM D5185m	60	54	52	57
			60	54 0	52 <1	57 0
Molybdenum	ppm	ASTM D5185m				
Molybdenum Manganese	ppm	ASTM D5185m ASTM D5185m	0	0	<1	0
Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 1010	0 904	<1 838	0 958
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 1010 1070	0 904 963	<1 838 953 874 1109	0 958 1010
Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 1010 1070 1150	0 904 963 980	<1 838 953 874	0 958 1010 991
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 1010 1070 1150 1270	0 904 963 980 1203	<1 838 953 874 1109	0 958 1010 991 1274
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 1010 1070 1150 1270 2060	0 904 963 980 1203 2923	<1 838 953 874 1109 2537	0 958 1010 991 1274 3173
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 1010 1070 1150 1270 2060	0 904 963 980 1203 2923	<1 838 953 874 1109 2537 history1	0 958 1010 991 1274 3173 history2
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m Method ASTM D5185m	0 1010 1070 1150 1270 2060 limit/base	0 904 963 980 1203 2923 current	<1 838 953 874 1109 2537 history1	0 958 1010 991 1274 3173 history2
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm	ASTM D5185m	0 1010 1070 1150 1270 2060 limit/base	0 904 963 980 1203 2923 current 5	<1 838 953 874 1109 2537 history1 5	0 958 1010 991 1274 3173 history2 4
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm	ASTM D5185m	0 1010 1070 1150 1270 2060 limit/base >25 >20	0 904 963 980 1203 2923 current 5 2	<1 838 953 874 1109 2537 history1 5 3 <1	0 958 1010 991 1274 3173 history2 4 2 0
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185m	0 1010 1070 1150 1270 2060 limit/base >25 >20	0 904 963 980 1203 2923 current 5 2 0	<1 838 953 874 1109 2537 history1 5 3 <1	0 958 1010 991 1274 3173 history2 4 2 0
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur  CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185m  Method ASTM D5185m	0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	0 904 963 980 1203 2923 current 5 2 0	<1 838 953 874 1109 2537 history1 5 3 <1 history1 0.5	0 958 1010 991 1274 3173 history2 4 2 0 history2
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur  CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m  method ASTM D5185m	0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	0 904 963 980 1203 2923 current 5 2 0 current 0.2 5.6	<1 838 953 874 1109 2537 history1 5 3 <1 history1 0.5 6.9	0 958 1010 991 1274 3173 history2 4 2 0 history2 0.3 6.0
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAE	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm	ASTM D5185m  Method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m  Method  *ASTM D7844  *ASTM D7624  *ASTM D7415  Method	0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >4 >20 >30	0 904 963 980 1203 2923 current 5 2 0 current 0.2 5.6 17.8 current	<1 838 953 874 1109 2537 history1 5 3 <1 history1 0.5 6.9 18.5 history1	0 958 1010 991 1274 3173 history2 4 2 0 history2 0.3 6.0 18.0 history2
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m  Method  ASTM D5185m ASTM D5185m  ASTM D5185m  ASTM D5185m  ASTM D5185m  ASTM D5185m  ASTM D5185m  Method  *ASTM D7844  *ASTM D7624  *ASTM D7415	0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >4 >20 >30 limit/base	0 904 963 980 1203 2923 current 5 2 0 current 0.2 5.6 17.8	<1 838 953 874 1109 2537 history1 5 3 <1 history1 0.5 6.9 18.5	0 958 1010 991 1274 3173 history2 4 2 0 history2 0.3 6.0 18.0



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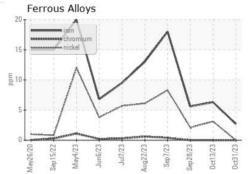




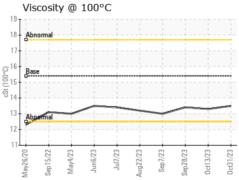
VISUAL		method	limit/base current		history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	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

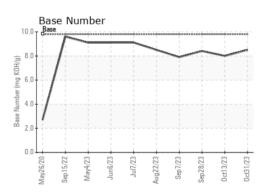
FLUID PROPE	ERTIES	method				history2
Visc @ 100°C	cSt	ASTM D445	15.4	13.5	13.3	13.4

# **GRAPHS**



10		copper							
6									
mdd 4					$\wedge$				
2-				1					
May26/20	Sep15/22	May4/23	June/23	Jul7/23 —	Aug22/23	Sep7/23	Sep28/23	Oct13/23	Oct31/23
		© May4/2		,	Aug22/2	Sep7/2	Sep28/2	0ct13/2	









Certificate L2367

Laboratory Sample No.

Lab Number Unique Number : 10727023 Test Package : FLEET

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : GFL0088085 : 05998663

Received Diagnosed

: 06 Nov 2023 : 06 Nov 2023 Diagnostician : Wes Davis

GFL Environmental - 820 - Joplin Hauling

3700 West 7th Street Joplin, MO US 64801

Contact: James Jarrett jjarrett@gflenv.com

T: (417)310-2802

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)