

## **OIL ANALYSIS REPORT**

Sample Rating Trend



Machine Id 8340 Component Natural Fluid PETRO

834022 Component Natural Gas Engine Fluid 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 INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0114501	GFL0074623	
Sample Date		Client Info		18 Apr 2024	20 Dec 2023	
Machine Age	hrs	Client Info		1801	1173	
Oil Age	hrs	Client Info		0	0	
Oil Changed		Client Info		N/A	Changed	
Sample Status				NORMAL	NORMAL	
CONTAMINAT	ION	method	limit/base	current	history1	history2
Water		WC Method	>0.1	NEG	NEG	
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>50	32	59	
Chromium	ppm	ASTM D5185m	>5	1	2	
Nickel	ppm	ASTM D5185m	>4	0	1	
Titanium	ppm	ASTM D5185m	>5	0	0	
Silver	ppm	ASTM D5185m	>3	0	0	
Aluminum	ppm	ASTM D5185m	>25	8	26	
Lead	ppm	ASTM D5185m	>40	1	<1	
Copper	ppm	ASTM D5185m	>150	4	15	
Tin	ppm	ASTM D5185m	>4	1	<1	
Vanadium	ppm	ASTM D5185m		<1	0	
Cadmium	ppm	ASTM D5185m		0	0	
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base 0	current 0	history1 2	history2
Boron Barium	ppm ppm					
Boron		ASTM D5185m	0	0	2	
Boron Barium	ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0	0 <1	2	
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	0 <1 72	2 2 54	
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	0 <1 72 3	2 2 54 12	
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	0 <1 72 3 952	2 2 54 12 833	
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	0 <1 72 3 952 1226	2 2 54 12 833 1257	  
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150	0 <1 72 3 952 1226 991	2 2 54 12 833 1257 710	
Boron Barium 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 ASTM D5185m	0 0 60 0 1010 1070 1150 1270	0 <1 72 3 952 1226 991 1208	2 2 54 12 833 1257 710 954	
Boron Barium 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 0 60 0 1010 1070 1150 1270 2060	0 <1 72 3 952 1226 991 1208 3172	2 2 54 12 833 1257 710 954 2100	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 00 00 1010 1070 1150 1270 2060	0 <1 72 3 952 1226 991 1208 3172 current	2 2 54 12 833 1257 710 954 2100 history1	     history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b>	0 0 60 1010 1070 1150 1270 2060 kimit/base >25	0 <1 72 3 952 1226 991 1208 3172 current 7	2 2 54 12 833 1257 710 954 2100 history1 25	     history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 kimit/base >25	0 <1 72 3 952 1226 991 1208 3172 current 7 2	2 2 54 12 833 1257 710 954 2100 history1 25 6	     history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <i>limit/base</i> >25	0 <1 72 3 952 1226 991 1208 3172 current 7 2 16	2 2 54 12 833 1257 710 954 2100 history1 25 6 75	     history2  
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>Imit/base</b> >25 >20	0 <1 72 3 952 1226 991 1208 3172 current 7 2 16 current	2 2 54 12 833 1257 710 954 2100 history1 25 6 75 history1	     history2   history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>Imit/base</b> >25 >20	0 <1 72 3 952 1226 991 1208 3172 current 7 2 16 current 0	2 2 54 12 833 1257 710 954 2100 history1 25 6 75 history1 0	     history2   history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	0 <1 72 3 952 1226 991 1208 3172 <i>current</i> 7 2 16 <i>current</i> 0 9.2	2 2 54 12 833 1257 710 954 2100 history1 25 6 75 6 75 history1 0 12.8	      history2  history2  history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>imit/base</b> >25 <b>imit/base</b> >20	0 <1 72 3 952 1226 991 1208 3172 <i>current</i> 7 2 16 <i>current</i> 0 9.2 20.9	2 2 54 12 833 1257 710 954 2100 history1 25 6 75 history1 0 12.8 25.3	     history2   history2  history2



# **OIL ANALYSIS REPORT**

FT-IR (Direct Trend)	VISUAL		method	limit/base	current	history1	history2		
Oxidation Nitration	White Metal	scalar	*Visual	NONE	NONE	NONE			
Sulfation	Yellow Metal	scalar	*Visual	NONE	NONE	NONE			
Abnormal	Precipitate	scalar	*Visual	NONE	NONE	NONE			
	Silt	scalar	*Visual	NONE	NONE	NONE			
15551551155110000000000000000000000000	Debris	scalar	*Visual	NONE	NONE	NONE			
	Sand/Dirt	scalar	*Visual	NONE	NONE	NONE			
0/23 -	Appearance	scalar	*Visual	NORML	NORML	NORML			
Dec20/23 Apr18/24	Odor	scalar	*Visual	NORML	NORML	NORML			
Deer Number	Emulsified Water	scalar	*Visual	>0.1	NEG	NEG			
Base Number Base	Free Water	scalar	*Visual		NEG	NEG			
	FLUID PROPE	RTIES	method	limit/base	current	history1	history2		
	Visc @ 100°C	cSt	ASTM D445	15.4	13.3	13.8			
	GRAPHS								
	Ferrous Alloys								
1/23	50 - iron								
Dec20/23	nickel								
	40								
Viscosity @ 100°C	<u></u> 30 -								
Abnormal	20								
Base	10-								
	0			4					
Abaamal	Dec20/23			Apr18/24					
Abnormal				Ap					
60 s	Non-ferrous Meta	ls							
Dec20/23	14 copper								
у. У	12								
	10								
	E 8								
	6								
	4								
	2								
	, sc20/23 -			4pr18/24 -					
	Dec2			Apr1					
	Viscosity @ 100°C	2			Base Number				
	19			10.0	Base		****		
	18 - Abnormal			• •					
	17-			(b)HQJ (b)HQJ (b) (b)HQJ (b) (b)HQJ (b) (b)HQJ (b) (c)HQJ (c) (c)HQJ (c)HQJ (c) (c)HQJ (c)HQJ (c) (c)HQJ (c)HQJ (c) (c)HQJ (c)HQJ (c) (c)HQJ (c)HQJ (c)HQJ (c) (c)HQJ (c)HQJ (c)HQJ (c) (c)HQJ (c)HQJ (c)H					
	C: 16 Base 0115 53 14			¥ 6.0	-				
	E15			uber (i					
				4.0					
	13 Abnormal			2.0					
	12 -								
	11				23 23				
	Dec20/23			Apr18/24	Dec20/23				
	De			Ar	De				
Laboratory Sample No.	: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : GFL0114501 Received : 19 Apr 2024 GFL Environmental - 095 - Atlanta We 2699 Cochran Industrial Bl								
Lab Number		Teste		2024 2 Apr 2024			ouglasville, (		
		Diagn		Apr 2024 - We	es Davis		S 30127-13		
TESTING LADORATORY Unique Number	. 10000000								
Certificate 12367 Test Package	: FLEET						: Darrell We		
TESTING LABORATORY Unique Number	: FLEET contact Customer Serv					darrell.weld	: Darrell We h@gflenv.co (800)207-66		

Contact/Location: Darrell Welch - GFL095