

# **OIL ANALYSIS REPORT**



#### Machine Id **220118** Component Front Diesel Engine Fluid PETRO CANADA DURON SHP 10W30 (--- LTR)

## 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	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0122953		
Sample Date		Client Info		03 Jun 2024		
Machine Age	hrs	Client Info		7722		
Oil Age	hrs	Client Info		0		
Oil Changed		Client Info		N/A		
Sample Status				NORMAL		
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0		
Water		WC Method	>0.2	NEG		
Glycol		WC Method		NEG		
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	45		
Chromium	ppm	ASTM D5185m	>20	3		
Nickel	ppm	ASTM D5185m	>4	0		
Titanium	ppm	ASTM D5185m		0		
Silver	ppm	ASTM D5185m	>3	0		
Aluminum	ppm	ASTM D5185m	>20	5		
Lead	ppm	ASTM D5185m	>40	3		
Copper	ppm	ASTM D5185m	>330	3		
Tin	ppm	ASTM D5185m	>15	<1		
Vanadium	ppm	ASTM D5185m		0		
Cadmium	ppm	ASTM D5185m		0		
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base 2	current 8	history1	history2
	ppm ppm					history2 
Boron		ASTM D5185m	2	8		
Boron Barium Molybdenum Manganese	ppm	ASTM D5185m ASTM D5185m	2 0	8 0		
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50	8 0 70		
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0	8 0 70 <1		
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950	8 0 70 <1 1025		
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950 1050	8 0 70 <1 1025 1244		
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	2 0 50 0 950 1050 995	8 0 70 <1 1025 1244 1095	  	
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	2 0 50 0 950 1050 995 1180	8 0 70 <1 1025 1244 1095 1353		
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 950 1050 995 1180 2600	8 0 70 <1 1025 1244 1095 1353 3384		
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 ASTM D5185m	2 0 50 950 1050 995 1180 2600	8 0 70 <1 1025 1244 1095 1353 3384 current		     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>	2 0 50 950 1050 995 1180 2600	8 0 70 <1 1025 1244 1095 1353 3384 current 2	     history1 	    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 <b>method</b> ASTM D5185m	2 0 50 950 1050 995 1180 2600 Limit/base >25	8 0 70 <1 1025 1244 1095 1353 3384 current 2 2 2	     history1	     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	2 0 50 0 950 1050 995 1180 2600 <b>limit/base</b> >25 >20	8 0 70 <1 1025 1244 1095 1353 3384 current 2 2 2 3	     history1  	    history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm <b>TS</b> ppm ppm	ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 <b>imit/base</b> >25 -20 <b>imit/base</b>	8 0 70 <1 1025 1244 1095 1353 3384 current 2 2 2 3 3	    history1   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	2 0 50 0 950 1050 995 1180 2600 <b>limit/base</b> >25 >20 <b>limit/base</b>	8 0 70 <1 1025 1244 1095 1353 3384 current 2 2 3 3 current 1.7	     history1   history1 	    history2  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 ppm ppm ppm	ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 <i>imit/base</i> >25 >20 <i>imit/base</i> >3 >20	8 0 70 <1 1025 1244 1095 1353 3384 <i>current</i> 2 2 2 3 <i>current</i> 1.7 12.7	     history1   history1  	     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 ppm ppm ppm	ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 <b>imit/base</b> >25 20 <b>imit/base</b> >3 >20 33 >30	8 0 70 <1 1025 1244 1095 1353 3384 <u>current</u> 2 2 2 3 <u>current</u> 1.7 12.7 25.4	     history1  history1	      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 ppm TS ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7844	2 0 50 0 950 1050 995 1180 2600 <b>imit/base</b> >25 >20 <b>imit/base</b> >3 >20 >30	8 0 70 <1 1025 1244 1095 1353 3384 Current 2 2 2 3 Current 1.7 12.7 25.4 Current	     history1  history1  history1  history1	    history2  history2  history2  history2



40 -35 -30 -<sup>LDS</sup>/SQF 20 -15 -10

1.0 0.0

> 18 16

() 14 () 00 ts 12

10-

# **OIL ANALYSIS REPORT**

FT-IR (Direct Tr	end)		VISUAL		method	limit/base	current	history1	history2
0xidation			White Metal	scalar	*Visual	NONE	NONE		
Sulfation			Yellow Metal	scalar	*Visual	NONE	NONE		
Abnormal			Precipitate	scalar	*Visual	NONE	NONE		
0			Silt	scalar	*Visual	NONE	NONE		
5			Debris	scalar	*Visual	NONE	NONE		
0	*****		Sand/Dirt	scalar	*Visual	NONE	NONE		
Jun3/24		Jun3/24	Appearance	scalar	*Visual	NORML	NORML		
٦r		٦٢	Odor	scalar	*Visual	NORML	NORML		
Base Number			Emulsified Water	scalar	*Visual	>0.2	NEG		
.0		1	Free Water	scalar	*Visual		NEG		
.0			FLUID PROPE	RTIES	method	limit/base	current	history1	history2
0			Visc @ 100°C	cSt	ASTM D445	12.00	15.4		
.0			GRAPHS						
0			Ferrous Alloys						
.0			45 T						
Jun3/24		100	40 - iron						
μ		1	35						
Viscosity @ 100	°C								
<sup>8</sup> T			E 25						
6			15						
4 Abnormal			10						
Page			0						
2 - d	*****	**********	Jun3/24			Jun3/24			
0 Abnormal						٦٢			
84		V	Non-ferrous Metal	ls					
Jun3/24		ر دا	copper						
,			8 - tin						
			6						
			E d						
			4						
			2						
			24+10			/24			
			Jun3/24			Jun3/24			
			Viscosity @ 100°C	2			Deer Needer	-	
		17			8	Base Number	e number		
			16			7.	.0		
			14 Abnormal			(B/HC	.0 -		
			5000 13 12 Base			(B) 6. HOX BW) 14 www. N 33 88 2	.0 -		
			E 12 Base			ਸ਼ 4 ਦ	.0		
			11+			N as a	.0 +		
			Abnormal				1		
			8				i i		
			Jun3/24			Jun3/24	Jun3/24		Jun3/24
			лГ			Ju	Πſ		Jur
	ANAR	Sample No.	: WearCheck USA - 50 : GFL0122953	Recei	ved : 04	1 Jun 2024	GFL Envi	ronmental - 816 - WCA 3083 S	of South Arkansas mackover Hwy
		Lab Number		Teste		5 Jun 2024	<b>-</b>		El Dorado, AR
	Cardific and Longer	Unique Number Test Package		Diagn	iosed : 06	Jun 2024 - Se	ean ⊢elton	Contor	US 71730 t: Mike Howell
	Certificate L2367 To discuss this		contact Customer Serv	ice at 1-8	00-237-136	0-237-1369.			ell@gflenv.com
	* - Denotes test	t methods that a	are outside of the ISO 1	7025 sco	pe of accred	litation.			T:
	Statements of c	conformity to sp	ecifications are based o	on the sim	nple accepta	nce decision	rule (JCGM 10	6:2012)	F:

Contact/Location: Mike Howell - GFL816 Page 2 of 2