

OIL ANALYSIS REPORT

Sample Rating Trend



920026 Component Diesel Engine Fluid

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

SAMPLE INFORMATION method

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.

Machine Id

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		method	limit/base	current	history1	history2	
Sample Number		Client Info		GFL0123829	GFL0098423	GFL0071448	
Sample Date		Client Info		02 Jul 2024	15 Nov 2023	18 Feb 2023	
Machine Age	hrs	Client Info		30965	30337	29227	
Oil Age	hrs	Client Info		628	30337	0	
Oil Changed		Client Info		Changed	Changed	Changed	
Sample Status				NORMAL	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	
Glycol		WC Method		NEG	NEG	NEG	
	0	mathad	limit/bass	ourroat	biotorut	history ()	
WEAR METAL	3	method	limit/base	current	history1	history2	
Iron	ppm	ASTM D5185m	>120	20	26	14	
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1	
Nickel	ppm	ASTM D5185m	>5	0	<1	<1	
Titanium	ppm	ASTM D5185m		0	<1	0	
Silver	ppm	ASTM D5185m	>2	0	0	0	
Aluminum	ppm	ASTM D5185m	>20	5	4	5	
Lead	ppm	ASTM D5185m	>40	2	<1	<1	
Copper	ppm	ASTM D5185m	>330	59	3	2	
Tin	ppm	ASTM D5185m	>15	<1	0	<1	
Vanadium	ppm	ASTM D5185m		0	0	0	
Cadmium	ppm	ASTM D5185m		0	0	0	
			11 1. 0			le la transition	
ADDITIVES		method	limit/base	current	history1	history2	
Boron	ppm	ASTM D5185m	limit/base	current 4	history1 0	nistory2 <1	
	ppm ppm						
Boron Barium		ASTM D5185m	0	4	0	<1	
Boron	ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0	4 0	0	<1 0	
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	4 0 60	0 0 61	<1 0 58	
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	4 0 60 0	0 0 61 <1	<1 0 58 <1	
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	4 0 60 0 917	0 0 61 <1 923	<1 0 58 <1 906	
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	4 0 60 0 917 1114	0 0 61 <1 923 1054	<1 0 58 <1 906 1059	
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	4 0 60 0 917 1114 1054	0 0 61 <1 923 1054 963	<1 0 58 <1 906 1059 951	
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	4 0 60 0 917 1114 1054 1268	0 0 61 <1 923 1054 963 1199	<1 0 58 <1 906 1059 951 1168	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	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 0 60 0 1010 1070 1150 1270 2060	4 0 60 917 1114 1054 1268 3409	0 0 61 <1 923 1054 963 1199 3160	<1 0 58 <1 906 1059 951 1168 2701	
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 method	0 0 60 0 1010 1070 1150 1270 2060	4 0 60 917 1114 1054 1268 3409 current 5	0 0 61 <1 923 1054 963 1199 3160 history1 9	<1 0 58 <1 906 1059 951 1168 2701 history2	
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 0 60 0 1010 1070 1150 1270 2060 limit/base	4 0 60 0 917 1114 1054 1268 3409 current	0 0 61 <1 923 1054 963 1199 3160 history1	<1 0 58 <1 906 1059 951 1168 2701 history2 7	
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 0 1010 1070 1150 1270 2060 limit/base	4 0 60 917 1114 1054 1268 3409 current 5 4	0 0 61 <1 923 1054 963 1199 3160 history1 9 3	<1 0 58 <1 906 1059 951 1168 2701 history2 7 4	
Boron Barium 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 ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25	4 0 60 917 1114 1054 1268 3409 current 5 4 4 4	0 0 61 <1 923 1054 963 1199 3160 history1 9 3 4 history1	<1 0 58 <1 906 1059 951 1168 2701 history2 7 4 3 3 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 TS ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 Limit/base >20	4 0 60 917 1114 1054 1268 3409 <u>current</u> 5 4 4 4 <u>current</u> 1.3	0 0 61 <1 923 1054 963 1199 3160 history1 9 3 4 history1 1.6	<1 0 58 <1 906 1059 951 1168 2701 history2 7 4 3 history2 0.5	
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 TS ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 imit/base >20	4 0 60 0 917 1114 1054 1268 3409 <i>current</i> 5 4 4 4 <i>current</i> 1.3 10.0	0 0 61 <1 923 1054 963 1199 3160 history1 9 3 4 history1 1.6 11.5	<1 0 58 <1 906 1059 951 1168 2701 history2 7 4 3 history2 0.5 11.9	
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	0 0 0 1010 1070 1150 1270 2060 2060 225 20 225 20 20 20 20 20 20 20 20 20 20 20 20 20	4 0 60 0 917 1114 1054 1268 3409 <i>current</i> 5 4 4 4 <i>current</i> 1.3 10.0 21.7	0 0 61 <1 923 1054 963 1199 3160 history1 9 3 4 4 history1 1.6 11.5 22.5	<1 0 58 <1 906 1059 951 1168 2701 history2 7 4 3 history2 0.5 11.9 21.2	
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	ASTM D5185m ASTM D7844 *ASTM D7844	0 0 0 1010 1070 1150 1270 2060 2060 225 220 220 220 220 220 230 20 20 20 20 20 20 20 20 20 20 20 20 20	4 0 60 917 1114 1054 1268 3409 <i>current</i> 5 4 4 4 <i>current</i> 1.3 10.0 21.7	0 0 61 <1 923 1054 963 1199 3160 history1 9 3 4 history1 1.6 11.5 22.5 history1	<1 0 58 <1 906 1059 951 1168 2701 history2 7 4 3 0.5 11.9 21.2 history2	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAM	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7414	0 0 0 1010 1070 1150 1270 2060 imit/base >25 imit/base >4 >20 30 imit/base	4 0 60 0 917 1114 1054 1268 3409 <u>current</u> 5 4 4 4 <u>current</u> 1.3 10.0 21.7 <u>current</u> 1.7	0 0 61 <1 923 1054 963 1199 3160 history1 9 3 4 history1 1.6 11.5 22.5 history1 17.7	<1 0 58 <1 906 1059 951 1168 2701 history2 7 4 3 0.5 11.9 21.2 history2 19.2	
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	ASTM D5185m ASTM D7844 *ASTM D7844	0 0 0 1010 1070 1150 1270 2060 2060 225 220 220 220 220 220 230 20 20 20 20 20 20 20 20 20 20 20 20 20	4 0 60 917 1114 1054 1268 3409 <i>current</i> 5 4 4 4 <i>current</i> 1.3 10.0 21.7	0 0 61 <1 923 1054 963 1199 3160 history1 9 3 4 history1 1.6 11.5 22.5 history1	<1 0 58 <1 906 1059 951 1168 2701 history2 7 4 3 0.5 11.9 21.2 history2	



35

30

u²⁵ 4ps/cm 20

15

10 Feb 18/23

10.0 T Base

.0 KOH/g) .0 G.0

Unmber (r 0.5 Base Number

0.0

19. 18-Abnormal 17-() 16 -15 -15 -14 -Base

13-Abnormal 12

OIL ANALYSIS REPORT

35 -	FT-IR (Direct Trend)	VISUAL		method	limit/base	current	history1
	Oxidation Nitration	White Metal	scalar	*Visual	NONE	NONE	NONE
su -	sufation	Yellow Metal	scalar	*Visual	NONE	NONE	NONE
25 -	Abnormal	Precipitate	scalar	*Visual	NONE	NONE	NONE
20-		Silt	scalar	*Visual	NONE	NONE	NONE
15-		Debris	scalar	*Visual	NONE	NONE	NONE
	***************************************	Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
10-	//23 - //23 -	Appearance	scalar	*Visual	NORML	NORML	NORML
	Feb 18/23 Nov15/23 Jul2/24	Odor	scalar	*Visual	NORML	NORML	NORML
		Emulsified Water	scalar	*Visual	>0.2	NEG	NEG
.0 -	Base Number	Free Water	scalar	*Visual	20.L	NEG	NEG
0.					11 11 11		
.0-		FLUID PROPE		method	limit/base	current	history1
.0-		Visc @ 100°C	cSt	ASTM D445	15.4	14.4	14.0
.0-		GRAPHS					
.0		Ferrous Alloys					
.04)/23 - //23 -	25 - iron	\sim				
	Feb 18/23 Nov15/23	nickel					
	Marca - 14 0 10000	20					
9-	Viscosity @ 100°C	툡 15					
8.	Abnormal	10-					
17.		5+					
16	Base						
4.			23		24		
3.	Abnormal	Feb 18/23	Nov15/23		Jul2/24		
2.		™ Non-ferrous Meta					
114	5/23 +	⁶⁰ T	15				
	Feb18/23 Nov15/23	50 - copper					
		sesses tin					
		40-					
		<u>틈</u> 30		/			
		20 -		/			
		10	/	/			
		8/23	/23		/24		
		Feb18	Vov15/23		Jul2/24		
		Viscosity @ 100°0	2				
		¹⁹			10	Base Number	
		18 - Abnormal			1		
		17-			(B)	0	
		© ¹⁶ Base			Base Number (mg KOH/g)	0	
		C 16 Base 15 3 14			Der (m		
		⁶³ 14			5 4.	0	
		13 Abnormal			e 2.	0	
		12					
		11	23				53
		Feb 18/23	Nov15/23		Jul2/24	Feb 18/23	Nov15/23
		ŭ	N			ц	N
	Laboratory	: WearCheck USA - 50)1 Madisc	on Ave Carv	NC 27513	GFL Env	ironmental -
ý	Sample No.	: GFL0123829	Rece		3 Jul 2024		630
f	Lab Number	r : 06229826	Teste	ed : 09) Jul 2024		
Ì	Territoria Unique Number	r :11113319 • FLEET	Diagr	nosed : 09) Jul 2024 - W	les Davis	Con

ironmental - 918 - Hartland HC 630 E Industrial Drive Hartland, WI US 53029 Contact: David McCall david.mccall@gflenv.com T: (262)369-3069 Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012) F:

Report Id: GFL918 [WUSCAR] 06229826 (Generated: 07/09/2024 10:52:22) Rev: 1

Certificate L2367

Test Package : FLEET

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.

Submitted By: David McCall

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lul2/24

NONE

NONE

NONE

NONE

NONE

NONE

NORML

NORML

NEG

NEG

13.2