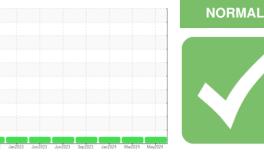


## **OIL ANALYSIS REPORT**

Sample Rating Trend





927110 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

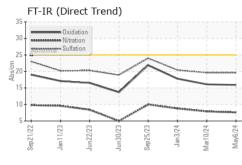
#### Fluid Condition

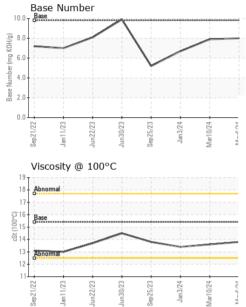
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sample Number		Client Info		GFL0120570	GFL0108484	GFL0108521
Sample Date		Client Info		06 May 2024	10 Mar 2024	03 Jan 2024
Machine Age	hrs	Client Info		0	0	0
Oil Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		N/A	N/A	N/A
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
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>120	5	4	7
Chromium	ppm	ASTM D5185m	>20	0	0	<1
Nickel	ppm	ASTM D5185m	>5	0	0	0
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>20	<1	<1	2
Lead	ppm	ASTM D5185m	>40	0	0	0
Copper	ppm	ASTM D5185m	>330	<1	0	<1
Tin	ppm	ASTM D5185m	>15	0	0	0
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base 0	current 0	history1 5	history2 0
	ppm ppm					
Boron		ASTM D5185m	0	0	5	0
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	0 0	5 0	0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	0 0 59	5 0 55	0 0 58
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	0 0 59 0	5 0 55 0	0 0 58 0
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 0 59 0 1013	5 0 55 0 971	0 0 58 0 948
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 0 59 0 1013 1136	5 0 55 0 971 1104	0 0 58 0 948 1073
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 0 59 0 1013 1136 1038	5 0 55 0 971 1104 976	0 0 58 0 948 1073 1033
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 0 59 0 1013 1136 1038 1235	5 0 55 0 971 1104 976 1207	0 0 58 0 948 1073 1033 1210
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 ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	0 0 59 0 1013 1136 1038 1235 3457	5 0 55 0 971 1104 976 1207 3349	0 0 58 0 948 1073 1033 1210 3150
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	0 0 60 1010 1070 1150 1270 2060	0 0 59 0 1013 1136 1038 1235 3457 current	5 0 55 0 971 1104 976 1207 3349 history1	0 0 58 0 948 1073 1033 1210 3150 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> ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	0 0 59 0 1013 1136 1038 1235 3457 current 3	5 0 55 0 971 1104 976 1207 3349 history1 2	0 0 58 0 948 1073 1033 1210 3150 history2 3
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 ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 <b>limit/base</b>	0 0 59 0 1013 1136 1038 1235 3457 current 3 4	5 0 55 0 971 1104 976 1207 3349 history1 2 2 2	0 0 58 0 948 1073 1033 1210 3150 history2 3 4
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 60 0 1010 1070 1150 1270 2060 <b>limit/base</b> >25 >20	0 0 59 0 1013 1136 1038 1235 3457 current 3 4 0	5 0 55 0 971 1104 976 1207 3349 history1 2 2 2 0	0 0 58 0 948 1073 1033 1210 3150 history2 3 4 1
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 ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >20 20	0 0 59 0 1013 1136 1038 1235 3457 current 3 4 0 0	5 0 55 0 971 1104 976 1207 3349 history1 2 2 2 0 0 history1	0 0 58 0 948 1073 1033 1210 3150 history2 3 4 1 1 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 limit/base >25 >20 limit/base	0 0 59 0 1013 1136 1038 1235 3457 current 3 4 0 current 0.3	5 0 55 0 971 1104 976 1207 3349 history1 2 2 2 0 history1 0.2	0 0 58 0 948 1073 1033 1210 3150 history2 3 4 1 1 history2 0.4
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	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 imit/base >20	0 0 59 0 1013 1136 1038 1235 3457 <i>current</i> 3 4 0 <i>current</i> 0.3 7.6	5 0 55 0 971 1104 976 1207 3349 history1 2 2 2 2 0 history1 0.2 7.9	0 0 58 0 948 1073 1033 1210 3150 history2 3 4 1 1 history2 0.4 8.8
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	0 0 59 0 1013 1136 1038 1235 3457 <i>current</i> 3 4 0 <i>current</i> 0.3 7.6 19.6	5 0 55 0 971 1104 976 1207 3349 history1 2 2 2 0 history1 0.2 7.9 19.6	0 0 58 0 948 1073 1033 1210 3150 history2 3 4 1 1 history2 0.4 8.8 20.4



## **OIL ANALYSIS REPORT**





	VISUAL		method	limit/bas	e current	history1	history2	
	White Metal	scalar	*Visual	NONE	NONE	NONE	NONE	
	Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE	
the season of the second se	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	
Mar10/24 - May6/24 -	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML	
Marl May	Odor	scalar	*Visual	NORML	NORML	NORML	NORML	
	Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG	
	Free Water	scalar	*Visual		NEG	NEG	NEG	
	FLUID PROPE	RTIES	method	limit/bas	e current	history1	history2	
	Visc @ 100°C	cSt	ASTM D445	15.4	13.8	13.6	13.4	
	GRAPHS							
	Ferrous Alloys							
24	iron	$\wedge$						
Mar10/24	12 - chromium	/						
N K		/						
		/						
	6	/						
	4	7						
	2 -							
		23	24	24				
	Sep 21/22 Jan 11/23 Jun 22/23	Jun30/23 Sep25/23	Jan3/24 Mar10/24	May6/24				
	Non-ferrous Meta		2	~				
- 1/24 -	<sup>10</sup> T	15						
Mar10/24	copper							
-	8 - tin							
	6							
	шdd							
	4							
	2-							
	Contraction of the local division of the loc							
	0		124	/24				
	Sep21/22 Jan11/23 Jun22/23	Jun30/23 Sep25/23	Jan3/24 Mar10/24	May6/24				
	Viscosity @ 100°				Base Numbe			
	<sup>19</sup>			10.0 Base				
	18 - Abnormal							
	17-			(B/HC	8.0			
	Dia Base Di 15 TS 14	++		Base Number (mg KOH/g)	6.0			
	10 IS	$\sim$		mber	4.0-			
	12			se Nu	1.0			
	Abnormal	1 1		e 	2.0			
	11				0.0			
		0/23	Jan3/24 - Iar10/24 -	May6/24 -		2/23 - 0/23 - 5/23 -	Jan3/24 - /lar10/24 - May6/24 -	
	Sep21/22 Jan11/23 Jun22/23	Jun30/23 Sep25/23	Jan3/24 Mar10/24	May	Sep21/22 Jan11/23	Jun 22/23 Jun 30/23 Sep 25/23	Jan3/24 Mar10/24 May6/24	
Laboratory	: WearCheck USA - 50	1 Madiso	n Ave., Cary, NC 27513 0			GFL Environmental - 904 - Chippewa Falls HC		
Sample No.	: GFL0120570	Recei	ived : 14	4 May 2024 4 May 2024	1	11888 & 1180	63 30th Avenue	
	: 06178349	: 06178349 Teste			1	Chip	pewa Falls, WI	
Unique Number		Diagr	agnosed : 14 May 2024 - Wes Davis			0	US 54729	
Test Package	: FLEEI contact Customer Serv	vice at 1 C	200-237 126	a		Cont	act: Andy Kane	
	are outside of the ISO					т.	(715)202-3420	

To discuss this sample repor \* - 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)

T: (715)202-3420 F:

Certificate L2367

Submitted By: BRAYDON SMITH

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