

## **OIL ANALYSIS REPORT**

Sample Rating Trend



Component Diesel Engine Fluid

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

SAMPLE INFORMATION method

### DIAGNOSIS Recommendation

Resample at the next service interval to monitor.

Machine Id

#### Wear

All component wear rates are normal.

#### Contamination

There is no indication of any contamination in the oil.

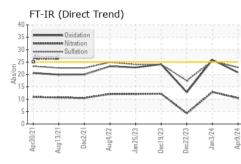
#### Fluid Condition

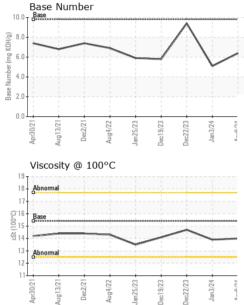
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

				Current	nistory i	
Sample Number		Client Info		GFL0117667	GFL0108728	GFL0105794
Sample Date		Client Info		09 Apr 2024	03 Jan 2024	22 Dec 2023
Machine Age	hrs	Client Info		11145	10752	10719
Oil Age	hrs	Client Info		10752	10719	9489
Oil Changed		Client Info		Not Changd	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
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>90	27	49	1
Chromium	ppm	ASTM D5185m		<1	<1	<1
Nickel	ppm	ASTM D5185m	>2	<1	0	0
Titanium	ppm	ASTM D5185m		0	0	0
Silver		ASTM D5185m	>2	0	0	0
Aluminum	ppm			4	2	2
	ppm	ASTM D5185m				
Lead	ppm	ASTM D5185m	>40	<1	<1	0
Copper	ppm	ASTM D5185m	>330	0	2	0
Tin	ppm		>15	<1	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		limit/base	current 6	history1 1	history2 2
	ppm ppm		0			
Boron		ASTM D5185m	0	6	1	2
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0 0 60	6 0	1 0	2 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	6 0 62	1 0 60	2 0 58
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	6 0 62 <1	1 0 60 0	2 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	6 0 62 <1 991	1 0 60 0 1017	2 0 58 0 904
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	6 0 62 <1 991 1103	1 0 60 0 1017 1118	2 0 58 0 904 1010
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	6 0 62 <1 991 1103 1103	1 0 60 0 1017 1118 1035	2 0 58 0 904 1010 976
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	6 0 62 <1 991 1103 1103 1360	1 0 60 0 1017 1118 1035 1329	2 0 58 0 904 1010 976 1175
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 ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	6 0 62 <1 991 1103 1103 1360 3492	1 0 60 0 1017 1118 1035 1329 2731 history1	2 0 58 0 904 1010 976 1175 3338 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 0 1010 1070 1150 1270 2060	6 0 62 <1 991 1103 1103 1360 3492 current 5	1 0 60 0 1017 1118 1035 1329 2731	2 0 58 0 904 1010 976 1175 3338 history2 5
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 0 1010 1070 1150 1270 2060	6 0 62 <1 991 1103 1103 1360 3492 current	1 0 60 0 1017 1118 1035 1329 2731 history1 8	2 0 58 0 904 1010 976 1175 3338 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	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25	6 0 62 <1 991 1103 1103 1360 3492 current 5 41	1 0 60 0 1017 1118 1035 1329 2731 <b>history1</b> 8 7	2 0 58 0 904 1010 976 1175 3338 history2 5 25
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	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	6 0 62 <1 991 1103 1103 1360 3492 current 5 41 3 2	1 0 60 0 1017 1118 1035 1329 2731 history1 8 7 <1 8	2 0 58 0 904 1010 976 1175 3338 history2 5 25 1 1 <i>history2</i>
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 <b>limit/base</b> >20	6 0 62 <1 991 1103 1360 3492 <u>current</u> 5 41 3 <u>current</u> 0.7	1 0 60 0 1017 1118 1035 1329 2731 history1 8 7 <1 8 7 <1 history1 0.7	2 0 58 0 904 1010 976 1175 3338 history2 5 25 1 1 history2 0.1
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 <i>limit/base</i> >25 >20 <i>limit/base</i> >20	6 0 62 <1 991 1103 1360 3492 current 5 41 3 <i>current</i> 0.7 10.5	1 0 60 0 1017 1118 1035 1329 2731 history1 8 7 <1 8 7 <1 history1 0.7 12.9	2 0 58 0 904 1010 976 1175 3338 history2 5 25 1 5 25 1 history2 0.1 4.3
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	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>imit/base</b> >25 <b>imit/base</b> >6 >20	6 0 62 <1 991 1103 1360 3492 <u>current</u> 5 41 3 <u>current</u> 0.7 10.5 22.8	1 0 60 0 1017 1118 1035 1329 2731 history1 8 7 <1 8 7 <1 0.7 12.9 25.4	2 0 58 0 904 1010 976 1175 3338 <b>history2</b> 5 25 1 <b>history2</b> 0.1 4.3 17.5
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <i>limit/base</i> >25 >20 <i>limit/base</i> >20	6 0 62 <1 991 1103 1360 3492 current 5 41 3 <i>current</i> 0.7 10.5	1 0 60 0 1017 1118 1035 1329 2731 history1 8 7 <1 8 7 <1 history1 0.7 12.9	2 0 58 0 904 1010 976 1175 3338 history2 5 25 1 5 25 1 history2 0.1 4.3
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	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>imit/base</b> >25 <b>imit/base</b> >6 >20	6 0 62 <1 991 1103 1360 3492 <u>current</u> 5 41 3 <u>current</u> 0.7 10.5 22.8	1 0 60 0 1017 1118 1035 1329 2731 history1 8 7 <1 8 7 <1 0.7 12.9 25.4	2 0 58 0 904 1010 976 1175 3338 <b>history2</b> 5 25 1 <b>history2</b> 0.1 4.3 17.5
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 D7844 *ASTM D7624 *ASTM D7415	0 0 0 1010 1070 1150 1270 2060 2060 225 20 220 20 20 20 20 20 20 20 20 20 20 20	6 0 62 <1 991 1103 1360 3492 current 5 41 3 current 0.7 10.5 22.8 current	1 0 60 0 1017 1118 1035 1329 2731 history1 8 7 <1 history1 0.7 12.9 25.4 history1	2 0 58 0 904 1010 976 1175 3338 history2 5 25 1 5 25 1 history2 0.1 4.3 17.5 history2



## **OIL ANALYSIS REPORT**





	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
$\checkmark$	Silt	scalar	*Visual	NONE	NONE	NONE	NONE
A REAL PROPERTY AND A REAL	Debris	scalar	*Visual	NONE	NONE	NONE	NONE
	Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
/23 - /24 - /24 -	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Dec22/23 Jan3/24 Apr9/24	Odor	scalar	*Visual	NORML	NORML	NORML	NORML
	Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
	Free Water	scalar	*Visual	20.L	NEG	NEG	NEG
$\bigwedge$	FLUID PROPE		method	limit/base	current	history1	history2
	Visc @ 100°C	cSt	ASTM D445	15.4	14.0	13.9	14.7
	GRAPHS						
	Ferrous Alloys						
	<sup>50</sup> T		٨				
Dec22/23 Jan3/24 лл.л.	40 -						
Ja A.	nickel	_	$\Lambda = I$	$\mathbf{A}$			
	30 E		$\setminus$ /				
	20-		( )				
			$\langle \rangle /$				
	10-		V				
			V				
	Apr30/21 Aug13/21 Dec2/21 Aug4/22	Jan 25/23	Dec19/23 - Dec22/23 - Jan3/24 -	Apr9/24			
			Dec	A			
	Non-ferrous Metal	S					
Jan3/24 Aa.a.	copper						
ā í	8 - energy tin						
	6						
	mdd						
	4						
	2						
			$\land \land$				
	2 21 2 21 2 21 + + + + + + + + + + + + + + + + + +	33					
	Apr30/21 Aug13/21 Dec2/21 Aug4/22	Jan25/23	Dec19/23 - Dec22/23 - Jan3/24 -	Apr9/24			
				-			
	Viscosity @ 100°C	Base Numb					
	18 - Abnormal			10.0	0		A
	17			<sub>(2</sub> 8.0	)		/ \
	© <sup>16</sup> Base			0.0 0.0 8ase Number 0.4		$\sim$ /	
	Base 15 3 14		÷				
	<sup>53</sup> 14	~	$\frown$	4.0	)+		
	13 Abnormal	· · · ·		Base			
	12			° 2.0			
			m m +			3	+ + 3
	Apr30/21 Aug13/21 Dec2/21 Aug4/22	Jan 25/23	Dec19/23 Dec22/23 Jan3/24	Apr9/24	Apr30/21 Aug13/21 Dec2/21	Aug4/22 Jan25/23 Dec19/23	Dec22/23 Jan3/24 Apr9/24
	Au L	Ja	De De	4	Au L	Ja De	A J
Laboratory	: WearCheck USA - 50	1 Madiaa		NC 27512	CEL Envi	ronmental - 415	. Michigan East
Laboratory Sample No.	: GFL0117667	Rece		Apr 2024	GPL ENVI		6200 Elmridge
	: 06146403	Teste		2 Apr 2024			ng Heights, MI
Unique Number		Diagr		Apr 2024 - W	les Davis		US 48313
Test Package	: FLEET	ion at t f	00 007 100	<b>`</b>			t: Frank Wolak

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)

Certificate L2367

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