

# **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 714056

### Wear

Metal levels are typical for a new component breaking in.

#### Contamination

There is no indication of any contamination in the oil.

### Fluid Condition

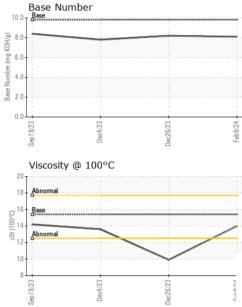
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFOR		method	iimii/base	current	nistory i	riistory2
Sample Number		Client Info		GFL0107664	GFL0107059	GFL0096592
Sample Date		Client Info		09 Feb 2024	26 Dec 2023	04 Dec 2023
Machine Age	hrs	Client Info		1764	514	1184
Oil Age	hrs	Client Info		600	600	600
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	ABNORMAL	NORMAL
-			12			
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	0.2	<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	39	30
Chromium	ppm		>20	1	1	<1
Nickel	ppm	ASTM D5185m	>2	، <1	3	0
Titanium	ppm	ASTM D5185m		<1	<1	0
Silver	ppm	ASTM D5185m	>2	<1	<1	0
Aluminum	ppm	ASTM D5185m		1	5	2
Lead	ppm	ASTM D5185m	>20	، <1	2	0
		ASTM D5185m		2	∠ ▲ 181	2
Copper Tin	ppm		>330	2 <1	4	0
Vanadium	ppm	ASTM D5185m	>15	<1	4	0
Cadmium	ppm	ASTM D5185m		<1	0	0
	ppm				-	
ADDITIVES		method	limit/base	current	history1	history2
				ourront	motory	
Boron	ppm	ASTM D5185m	0	2	250	3
	ppm ppm	ASTM D5185m				
Boron		ASTM D5185m	0	2	250	3
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0 0 60	2 0	250 <1	3 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	2 0 60	250 <1 114	3 0 60
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	2 0 60 <1	250 <1 114 5	3 0 60 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	2 0 60 <1 924	250 <1 114 5 669	3 0 60 <1 897
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	2 0 60 <1 924 1066	250 <1 114 5 669 1397	3 0 60 <1 897 1060
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	2 0 60 <1 924 1066 1013	250 <1 114 5 669 1397 706	3 0 60 <1 897 1060 858
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	2 0 60 <1 924 1066 1013 1195	250 <1 114 5 669 1397 706 795	3 0 60 <1 897 1060 858 1183
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 1010 1070 1150 1270 2060	2 0 60 <1 924 1066 1013 1195 3420 current	250 <1 114 5 669 1397 706 795 2265 history1	3 0 60 <1 897 1060 858 1183 3133 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	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	0 0 60 1010 1070 1150 1270 2060	2 0 60 <1 924 1066 1013 1195 3420	250 <1 114 5 669 1397 706 795 2265	3 0 60 <1 897 1060 858 1183 3133
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	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	2 0 60 <1 924 1066 1013 1195 3420 current 4	250 <1 114 5 669 1397 706 795 2265 2265 history1 ▲ 84	3 0 60 <1 897 1060 858 1183 3133 history2 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 0 1010 1070 1150 1270 2060 <b>imit/base</b> >25 >20	2 0 60 <1 924 1066 1013 1195 3420 current 4 1 2	250 <1 114 5 669 1397 706 795 2265 history1 ▲ 84 3 3	3 0 60 <1 897 1060 858 1183 3133 history2 4 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	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>Imit/base</b> >25 -20 <b>Imit/base</b>	2 0 60 <1 924 1066 1013 1195 3420 current 4 1 2 2 current	250 <1 114 5 669 1397 706 795 2265 2265 history1 & 84 3 3 3	3 0 60 <1 897 1060 858 1183 3133 history2 4 4 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 TS ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>Imit/base</b> >25 >20 <b>Imit/base</b> >20	2 0 60 <1 924 1066 1013 1195 3420 current 4 1 2 current 0.7	250 <1 114 5 669 1397 706 795 2265 history1 ▲ 84 3 3 3 history1 0.3	3 0 60 <1 897 1060 858 1183 3133 history2 4 4 4 1 history2 0.6
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 <b>imit/base</b> >25 >20 <b>imit/base</b> >20	2 0 60 <1 924 1066 1013 1195 3420 current 4 1 2 current 0.7 9.4	250 <1 114 5 669 1397 706 795 2265 history1 ▲ 84 3 3 history1 0.3 9.4	3 0 60 <1 897 1060 858 1183 3133 history2 4 4 4 1 history2 0.6 9.3
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 ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>imit/base</b> >25 >20 <b>imit/base</b> >6 >20	2 0 60 <1 924 1066 1013 1195 3420 current 4 1 2 current 0.7	250 <1 114 5 669 1397 706 795 2265 history1 ▲ 84 3 3 3 history1 0.3 9.4 24.8	3 0 60 <1 897 1060 858 1183 3133 history2 4 4 4 1 history2 0.6 9.3 20.0
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 <b>imit/base</b> >25 >20 <b>imit/base</b> >20	2 0 60 <1 924 1066 1013 1195 3420 current 4 1 2 current 0.7 9.4	250 <1 114 5 669 1397 706 795 2265 history1 ▲ 84 3 3 history1 0.3 9.4	3 0 60 <1 897 1060 858 1183 3133 history2 4 4 4 1 history2 0.6 9.3
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 ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>imit/base</b> >25 >20 <b>imit/base</b> >6 >20	2 0 60 <1 924 1066 1013 1195 3420 current 4 1 2 current 0.7 9.4 20.2	250 <1 114 5 669 1397 706 795 2265 history1 ▲ 84 3 3 3 history1 0.3 9.4 24.8	3 0 60 <1 897 1060 858 1183 3133 history2 4 4 4 1 history2 0.6 9.3 20.0
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 *ASTM D7844	0 0 0 1010 1070 1150 2260 225 220 220 imit/base >6 >20 >20 30 imit/base	2 0 60 <1 924 1066 1013 1195 3420 <i>current</i> 4 1 2 <i>current</i> 0.7 9.4 20.2 <i>current</i>	250 <1 114 5 669 1397 706 795 2265 history1 ▲ 84 3 3 history1 0.3 9.4 24.8 history1	3 0 60 <1 897 1060 858 1183 3133 history2 4 4 4 1 1 history2 0.6 9.3 20.0 history2



# **OIL ANALYSIS REPORT**

VISUAL



		VISUAL						
the second s		White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
		Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
		Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
		Silt	scalar	*Visual	NONE	NONE	NONE	NONE
		Debris	scalar	*Visual	NONE	NONE	NONE	NONE
5/23	Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE	
	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML	
Dec26/23	Feb 9/24	Odor	scalar	*Visual	NORML	NORML	NORML	NORML
_		Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
		Free Water			>0.2			
			scalar	*Visual		NEG	NEG	NEG
		FLUID PROPE		method	limit/base	current	history1	history2
		Visc @ 100°C GRAPHS	cSt	ASTM D445	15.4	14.0	<b>9</b> .9	13.6
$\searrow$		Ferrous Alloys						
Ť		40						
6/23 -	C. L. D. P. A.	35 - iron						
Dec26/23	Luk	30 - nickel						
		25						
		툡 20						
		15						
		10						
		5						
				~	Wernood,			
		Sep19/23 Dec4/23		Dec26/23	Feb9/24			
		D. Sep		Dec	2			
		Non-ferrous Meta	ils					
		200 copper		1				
		Reseases   GSC		$\wedge$				
		150 - 150 -	/	$\sim$				
		-						
		툡 100-	/					
		50 -	/	· · · · · · · · · · · · · · · · · · ·				
			, 		$\mathbf{N}$			
			A44444444	<u>ຄ</u>				
		Sep 19/23 Dec4/23		Dec26/23	Feb 9/24			
				De	LL.			
			-					
		Viscosity @ 100°	С			Base Numbe	er	
			С		<sup>10.0</sup> T	Base Numbe	er	
		Viscosity @ 100°	с		10.0		er	
		Viscosity @ 100°	c		10.0		er	
		Viscosity @ 100°	C		10.0		er	
		Viscosity @ 100°	C		10.0		er	
		Viscosity @ 100°	c		10.0		er	
		Viscosity @ 100°	c		10.0 8.0 6.0- 4.0 4.0- 4.0		er	
		Viscosity @ 100°	c		10.0		er	
		Viscosity @ 100°	с		10.0 (0)/HCX Base Base 2.0 0.0	Base		
		Viscosity @ 100°	с	26/23	10.0 (0)/HCX Base Base 2.0 0.0	Base		57/07
		Viscosity @ 100°	с	Dec26/23	10.0 (0)/HCX Base Base 2.0 0.0			Dectol/13
		Viscosity @ 100°			-0.01 -0.03 -0.04(0) -0.2 Base Number (md K0H(0) -0.2 Base Number (md K0H(0) -0.2 Base Number (md K0H(0)) -0.0 Constant (m	Base	Dec4/23	
d	Laboratory	Viscosity @ 100° Abnormal Base Control of the second se	01 Madiso	n Ave., Cary	10.0 (0)HOX Bul) acting Bul) a	Base		- 465 - Pontia
	Sample No.	Viscosity @ 100° Abnormal Base Construction Base Construction Cons	01 Madiso Recei	n Ave., Cary i <b>ved</b> : 15	10.0 (0)H(0) Bull 30.0 100 100 100 100 100 100 100	Base	Dec4/23	- <b>465 - Ponti</b> a 888 Baldw
	Sample No. Lab Number	Viscosity @ 100° 4bnormal 6 10 10 10 10 10 10 10 10 10 10	01 Madiso Recei Teste	n Ave., Cary ived : 15	NC 27513 Feb 2024 Feb 2024	Base EZAG	Dec4/23	- <b>465 - Pontia</b> 888 Baldw Pontiac, I
	Sample No. Lab Number Unique Number	Viscosity @ 100° Abnormal Base Control of the second se	01 Madiso Recei	n Ave., Cary ived : 15	10.0 (0)H(0) Bull 30.0 100 100 100 100 100 100 100	Base EZAG	Environmental	- 465 - Pontia 888 Baldw Pontiac, N US 4834
care L2367	Sample No. Lab Number Unique Number Test Package	Viscosity @ 100° Abnormal Base Control of the second se	01 Madiso Recei Teste Diagn	in Ave., Cary ived : 15 id : 19 nosed : 19	NC 27513 Feb 2024 Feb 2024 - We	Base EZAG	Environmental Contact:	- <b>465 - Pontia</b> 888 Baldw Pontiac, I

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Submitted By: Ricky Matthews

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