

# **OIL ANALYSIS REPORT**

Sample Rating Trend





Machine Id 912015 Component

Fluid

**Diesel Engine** 

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

## DIAGNOSIS

### Recommendation

Resample at the next service interval to monitor.

### Wear

Metal levels are typical for a components first oil change.

#### 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.

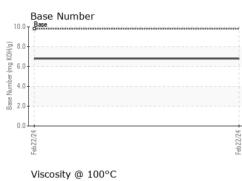
(	,			Feb2024		
SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0110104		
Sample Date		Client Info		22 Feb 2024		
Machine Age	hrs	Client Info		3740		
Oil Age	hrs	Client Info		3740		
Oil Changed		Client Info		Not Changd		
Sample Status				NORMAL		
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<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	>120	11		
Chromium	ppm	ASTM D5185m	>20	1		
Nickel	ppm	ASTM D5185m	>5	1		
Titanium	ppm	ASTM D5185m	>2	، <1		
Silver		ASTM D5185m	>2	0		
Aluminum	ppm ppm	ASTM D5185m	>20	2		
				2 <1		
Lead	ppm	ASTM D5185m	>40			
Copper	ppm	ASTM D5185m	>330	4		
Tin Vanadium	ppm	ASTM D5185m	>15	<1		
	ppm	ASTM D5185m		<1		
Cadmium	ppm	ASTM D5185m		<1		
ADDITIVES	ppm	method	limit/base	<1 current	 history1	history2
	ppm	method	limit/base			
ADDITIVES		method		current	history1	
ADDITIVES Boron	ppm	method ASTM D5185m	0	current 1	history1	history2
ADDITIVES Boron Barium	ppm ppm	method ASTM D5185m ASTM D5185m	0	current 1 34	history1 	history2 
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	current 1 34 56	history1  	history2  
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	current 1 34 56 <1	history1   	history2   
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	current 1 34 56 <1 793	history1   	history2   
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	current           1           34           56           <1           793           882	history1	history2    
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150	current           1           34           56           <1           793           882           853	history1	history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270	current           1           34           56           <1           793           882           853           1036	history1	history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	method 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	Current 1 34 56 <1 793 882 853 1036 2469	history1	history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method 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	current           1           34           56           <1           793           882           853           1036           2469           current           4	history1 history1	history2 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm <b>TS</b>	method           ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	current         1         34         56         <1         793         882         853         1036         2469         current	history1 history1	history2 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 <b>limit/base</b>	current           1           34           56           <1           793           882           853           1036           2469           current           4           3	history1	history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 <b>limit/base</b> >25 >20	current         1         34         56         <1         793         882         853         1036         2469         current         4         3         2	history1 history1 history1	history2 history2 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >20 20	current         1         34         56         <1         793         882         853         1036         2469         current         4         3         2         current         0.5	history1 history1 history1 history1	history2 history2 history2 history2
ADDITIVES 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	method         ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>limit/base</b> >25 >20 <b>limit/base</b>	current         1         34         56         <1         793         882         853         1036         2469         current         4         3         2         current	history1 history1 history1 history1	history2 history2 history2 history2 history2
ADDITIVES 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	method           ASTM D5185m           ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 220 220 1000 225 220 20 20 20 20 20 20 20 20 20 20 20 20	current         1         34         56         <1         793         882         853         1036         2469         current         4         3         2         current         0.5         8.0         19.5	history1                        history1               history1            history1            history1	history2
ADDITIVES 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 <b>TS</b> ppm ppm ppm ppm	method         ASTM D5185m         ASTM D7185M         ASTM D7624         *ASTM D7415         method	0 0 0 1010 1070 1150 1270 2060 2060 225 20 225 220 220 220 220 230 20 20 20 20 20 20 20 20 20 20 20 20 20	current         1         34         56         <1         793         882         853         1036         2469         current         4         3         2         current         0.5         8.0         19.5         current	history1	history2                              history2            history2            history2            history2            history2            history2            history2            history2            history2            history2
ADDITIVES 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	method           ASTM D5185m           ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 20 225 20 <b>imit/base</b> >20 <b>imit/base</b> >20	current         1         34         56         <1         793         882         853         1036         2469         current         4         3         2         current         0.5         8.0         19.5	history1                        history1            history1            history1               history1 </th <th>history2   history2               history2   </th>	history2   history2               history2

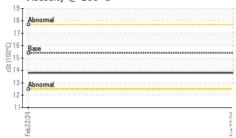


# **OIL ANALYSIS REPORT**

VISUAL

method





White Metal						
	scalar	*Visual	NONE	NONE		
Yellow Metal	scalar	*Visual	NONE	NONE		
Precipitate	scalar	*Visual	NONE	NONE		
Silt	scalar	*Visual	NONE	NONE		
Debris	scalar	*Visual	NONE	NONE		
Sand/Dirt	scalar	*Visual	NONE	NONE		
Appearance	scalar	*Visual	NORML	NORML		
Odor	scalar	*Visual	NORML	NORML		
Emulsified Water	scalar	*Visual	>0.2			
Free Water	scalar	*Visual		NEG		
	DTICO				la i a ta mud	bists
		method	limit/base	current	nistory i	history2
Visc @ 100°C	cSt	ASTM D445	15.4	13.8		
GRAPHS						
Ferrous Alloys						
12 ion 1						
10						
dd 6						
4						
2						
			4			
b22/2			b22/2			
-			a.			
	S					
copper						
8 - Incommentation lead						
6						
d. 4						
2 -						
124			/24			
Feb 22			Feb22			
—			_			
<sup>19</sup> T			10.0	Base Number		
18 - Abnormal						
17-			.5 8.0	)		
			KOH			
0 15 Base			₽ 6.0	1		
ts 14			aquin 4.0	J		
12			N as			
Abnormai			<sup>66</sup> 2.0	)		
11						
2/24						ŝ
Feb22/24			Feb 22/24	Feb 22/24		
	Sand/Dirt Appearance Odor Emulsified Water Free Water FLUID PROPE Visc @ 100°C GRAPHS Ferrous Alloys 10 10 10 10 10 10 10 10 10 10	Sand/Dirt scalar Appearance scalar Odor scalar Emulsified Water scalar Free Water scalar Free Water scalar FLUID PROPERTIES Visc @ 100°C cSt GRAPHS Ferrous Alloys 10 10 10 10 10 10 10 10 10 10	Sand/Dirt scalar *Visual Appearance scalar *Visual Emulsified Water scalar *Visual Free Water scalar *Visual Free Water scalar *Visual FLUID PROPERTIES method Visc @ 100°C cSt ASTM D445 GRAPHS Ferrous Alloys Non-ferrous Metals Non-ferrous Metals Viscosity @ 100°C Viscosity @ 100°C	Sand/Dirt scalar *Visual NONE Appearance scalar *Visual NORML Odor scalar *Visual NORML Emulsified Water scalar *Visual >0.2 Free Water scalar *Visual >0.2 Non-ferrous Alloys Communication of the scalar scalar *Visual >0.2 Ferrous Alloys Communication of the scalar scalar *Visual >0.2 Ferrous Alloys Viscosity @ 100°C v Viscosity @ 100°C v Communication of the scalar scalar *Visual >0.2 Viscosity @ 100°C v Communication of the scalar scalar *Visual >0.2 Viscosity @ 100°C v Communication of the scalar scalar *Visual >0.2 Viscosity @ 100°C v Communication of the scalar scalar *Visual >0.2 Viscosity @ 100°C v Communication of the scalar scalar *Visual >0.2 Viscosity @ 100°C v Communication of the scalar scalar *Visual >0.2 Viscosity @ 100°C v Communication of the scalar scalar *Visual >0.2 Viscosity @ 100°C v Communication of the scalar scalar *Visual >0.2 Viscosity @ 100°C v Communication of the scalar scalar *Visual >0.2 Viscosity @ 100°C v Communication of the scalar scalar *Visual >0.2 Viscosity @ 100°C v Communication of the scalar scalar *Visual >0.2 Viscosity @ 100°C v Communication of the scalar scalar *Visual >0.2 Viscosity @ 100°C v Communication of the scalar scalar *Visual >0.2 Viscosity @ 100°C v Communication of the scalar scalar *Visual >0.2 Viscosity @ 100°C v Communication of the scalar scalar *Visual >0.2 Viscosity % Communication of the scalar scalar *Visual >0.2 Viscosity % Communication of the scalar *Visual >0.2 Visc	Sand/Dirt scalar *Visual NONE NONE Appearance scalar *Visual NORML NORML Odor scalar *Visual NORML NORML Emulsified Water scalar *Visual >0.2 NEG Free Water scalar *Visual NORML NEG Free Water scalar *Visual NORML NORML Visc @ 100°C cSt ASTM D445 15.4 13.8 GRAPHS Ferrous Alloys Compared and the scalar *Visual NORML NORML Visc @ 100°C cSt ASTM D445 15.4 13.8 GRAPHS Forrous Alloys Viscosity @ 100°C	Sand/Dirt scalar Visual NONE NONE Appearance scalar Visual NORML NORML Emulsified Water scalar Visual >0.2 NEG Free Water scalar Visual >0.2 NEG FLUID PROPERTIES method imit/base current history1 Visc @ 100°C cSt ASTM D445 15.4 13.8 GRAPHS Ferrous Alloys 10 10 10 10 10 10 10 10 10 10

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Submitted By: seel also GFL468 - Laura Wilson