

## **OIL ANALYSIS REPORT**

ppm

Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus

{UNASSIGNED} 356109-MCC 06 F-350

Component **Gasoline Engine** 

PETRO CANADA DURON SHP 15W40 (7 QTS)

## 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.

## 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.

RT				N	ORMAL
MATION	method	oativa limit/base	Dect023	history1	history2
	Client Info		GFL0104931	GFL0088065	
	Client Info		21 Dec 2023	09 Oct 2023	
mls	Client Info		161523	161523	
mls	Client Info		161523	0	
	Client Info		N/A	N/A	
			NORMAL	ATTENTION	
ION	method	limit/base	current	history1	history2
	WC Method	>4.0	<1.0	1.6	
	WC Method	>0.2	NEG	NEG	
	WC Method		NEG	NEG	
~		limit/bass	current	biotond	biotory ()
S	method	iimii/base	current	history1	history2
S ppm	Method ASTM D5185m	>150	52	119	nistory2
ppm	ASTM D5185m	>150	52	119	
ppm ppm	ASTM D5185m ASTM D5185m	>150 >20	52 4	119 8	
ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	>150 >20	52 4 2	119 8 4	
ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	>150 >20 >5	52 4 2 <1	119 8 4 <1	
ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	>150 >20 >5 >2	52 4 2 <1 0	119 8 4 <1 0	
ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	>150 >20 >5 >2 >2	52 4 2 <1 0 8	119 8 4 <1 0 16	  
ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	>150 >20 >5 >2 >2 >40 >50	52 4 2 <1 0 8 <1	119 8 4 <1 0 16 0	
ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	>150 >20 >5 >2 >2 >40 >50 >155	52 4 2 <1 0 8 <1 4 1 0	119 8 4 <1 0 16 0 10	
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	>150 >20 >5 >2 >2 >40 >50 >155	52 4 2 <1 0 8 <1 4 1	119 8 4 <1 0 16 0 10 <1	
ppm 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 ASTM D5185m	>150 >20 >5 >2 >2 >40 >50 >155	52 4 2 <1 0 8 <1 4 1 0	119 8 4 <1 0 16 0 10 <1 <1 <1	
ppm 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 ASTM D5185m	>150 >20 >5 >2 >40 >50 >155 >10	52 4 2 <1 0 8 <1 4 1 0 0 0	119 8 4 <1 0 16 0 10 <1 <1 <1 <1	
ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	>150 >20 >5 >2 >40 >50 >155 >10	52 4 2 <1 0 8 <1 4 1 0 0 0 0 Current	119 8 4 <1 0 16 0 10 <1 <1 <1 <1 <1 <1 history1	       history2
ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m <b>method</b>	>150 >20 >5 >2 >40 >50 >155 >10 limit/base 0	52 4 2 <1 0 8 <1 4 1 0 0 0 0 <i>current</i> 66	119 8 4 <1 0 16 0 10 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1	       history2
ppm 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 ASTM D5185m <b>method</b> ASTM D5185m ASTM D5185m	>150 >20 >5 >2 >40 >50 >155 >10 limit/base 0 0	52 4 2 <1 0 8 <1 4 1 0 0 0 0 <i>current</i> 66 0	119 8 4 <1 0 16 0 10 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1	      history2
ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	>150 >20 >5 >2 >40 >50 >155 >10 limit/base 0 0 60	52 4 2 <1 0 8 <1 4 1 0 0 0 0 <i>current</i> 66 0 91	119 8 4 <1 0 16 0 10 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1	       history2
	MATION mls mls	MATION method Client Info Client Info mls Client Info mls Client Info Client Info Client Info Client Info WC Method WC Method WC Method	MATION method limit/base Client Info MIS Client Info MIS Client Info Client Info MIS Client Info Client Info Clien	MATION method limit/base current Client Info GFL0104931 Client Info 21 Dec 2023 mls Client Info 161523 mls Client Info 161523 Client Info N/A Client Info N/A NORMAL ION method limit/base current WC Method >4.0 <1.0 WC Method >0.2 NEG WC Method NEG	MATION method limit/base current history1   Client Info GFL0104931 GFL0088065   Client Info 21 Dec 2023 09 Oct 2023   mls Client Info 161523 161523   mls Client Info 161523 0   VC Method >0.2 NEG   WC Method >0.2 NEG   WC Method >0.2 NEG

Sample Rating Trend

NODMAL

Zinc	ppm	ASTM D5185m	1270	868	910	
Sulfur	ppm	ASTM D5185m	2060	3178	2286	
CONTAMINAN	TS	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>30	18	28	
Sodium	ppm	ASTM D5185m	>400	2	9	
Potassium	ppm	ASTM D5185m	>20	1	3	

810

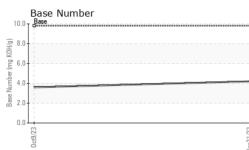
717

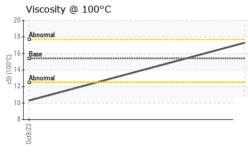
ASTM D5185m 1150

INFRA-RED		method				history2
Soot %	%	*ASTM D7844		0	0.1	
Nitration	Abs/cm	*ASTM D7624	>20	10.0	15.9	
Sulfation	Abs/.1mm	*ASTM D7415	>30	19.6	27.9	
FLUID DEGRAD	ATION	method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	12.9	27.8	
Base Number (BN)	mg KOH/g	ASTM D2896	9.8	4.2	3.6	



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******	VISUAL		method	limit/base	current	history1	history2
	White Metal	scalar	*Visual	NONE	NONE	NONE	
	Yellow Metal	scalar	*Visual	NONE	NONE	NONE	
	Precipitate	scalar	*Visual	NONE	NONE	NONE	
	Silt	scalar	*Visual	NONE	NONE	NONE	
	Debris	scalar	*Visual	NONE	NONE	NONE	
	Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	
Dec21/23	Appearance	scalar	*Visual	NORML	NORML	NORML	
Dec2	Odor	scalar	*Visual	NORML	NORML	NORML	
	Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	
	Free Water		*Visual		NEG	NEG	
	FLUID PROPE	RTIES	method	limit/base	current	history1	history2
	Visc @ 100°C	cSt	ASTM D445	15.4	17.3	<b>1</b> 0.3	
	GRAPHS						
	Ferrous Alloys						
	120 iron						
	100 - nessessesses chromium						
	80-						
E	§ 60-						
	40						
	20 -						
	0						
	0ct9/23			Dec21/23			
	ŏ			Dec			
	Non-ferrous Meta	ls					
	10 copper						
	8 -						
	б- Е						
	4						
	2 -						
				100000000			
	2 2						
	2			/23			
	0ct9/23			Dec21/23 -			
	Viscosity @ 100°C	2		Dec21/23 -	Base Numb	ar	
	Viscosity @ 100°C	2		CZ/17230	Base Numb	er	
	Viscosity @ 100°C	2		123 10.0		er	
	Viscosity @ 100°C	5		123 10.0		er	
	Viscosity @ 100°C			123 10.0		er	
	Viscosity @ 100°C			123 10.0		er	
	Viscosity @ 100°C			123 10.0		er	
	Viscosity @ 100°C			0.01 Dec21		er	
	Viscosity @ 100°C			10.0 10.0 8.0 Multiple (June 10, 10, 10, 10, 10, 10, 10, 10, 10, 10,		er	
	Viscosity @ 100°C			10.0 10.0 8.0 HOX KOH(0) Base Winnber 4.0 8 2.0 0.0	Base	er	
	Viscosity @ 100°C			10.0 10.0 8.0 Multiple (June 10, 10, 10, 10, 10, 10, 10, 10, 10, 10,		er	
	Viscosity @ 100°C			10.0 10.0 8.0 6.0 Base Mumber (mg K0H/8) 0.0 0.0 0.0	Base		
Laboratory	Viscosity @ 100°C	501 Madiso		10.0 (0)HOX MU area (0)HOX M	Base	invironmental - 820	- Joplin Haulin
	Viscosity @ 100°C		: 29 [	10.0 10.0 8.0 6.0 Base Mumber (mg K0H/8) 0.0 0.0 0.0	Base	invironmental - 820	
Laboratory Sample No. Lab Number Unique Number	Viscosity @ 100°C	501 Madise Recieved	: 29 [ d : 02 J	10.0 (9)HOX Bull 4.0 (9)HOX BUL 4.0 (	Base	invironmental - 820	- Joplin Haulir West 7th Stre
Laboratory Sample No. Lab Number	Viscosity @ 100°C	501 Madisa Recieved Diagnose Diagnostia	: 29 [ d : 02 J cian : Don	10.0 (9) (9) (9) (9) (9) (9) (9) (9) (9) (9)	GFL E	invironmental - 820 3700 '	<b>- Joplin Hauli</b> West 7th Stre Joplin, M US 6480

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

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