

OIL ANALYSIS REPORT

Sample Rating Trend



412044 Component **Diesel Engine**

Machine Ic

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

SAMPLE INFORMATION method GFL0045431 GFL0045435 GFL0045407 Sample Number **Client Info** No corrective action is recommended at this time. 08 Jul 2023 Sample Date Client Info 22 Jun 2023 02 Jun 2023 Resample at the next service interval to monitor. 0 Machine Age hrs Client Info 2919 2663 Oil Age hrs Client Info 1628 0 1372 Oil Changed Not Changd N/A **Client Info** Not Changd Sample Status NORMAL NORMAL NORMAL CONTAMINATION WC Method NEG NEG Glycol NEG WEAR METALS ASTM D5185m >120 8 12 9 Iron ppm Chromium ASTM D5185m >20 <1 ppm <1 <1 2 2 Nickel ASTM D5185m >5 <1 ppm Titanium ASTM D5185m >2 0 0 ppm <1 0 0 Silver >2 ppm ASTM D5185m <1 Aluminum ppm ASTM D5185m >20 3 1 2 ASTM D5185m >40 0 0 Lead <1 ppm >330 4 2 Copper ppm ASTM D5185m <1 Tin ASTM D5185m >15 0 1 2 ppm Vanadium 0 0 ppm ASTM D5185m <1 0 Cadmium ppm ASTM D5185m 0 <1 **ADDITIVES** 0 11 12 Boron ASTM D5185m 16 ppm ASTM D5185m 0 Barium ppm 2 <1 0 Molvbdenum ASTM D5185m 60 61 66 65 ppm <1 <1 <1 Manganese ppm ASTM D5185m 0 Magnesium ASTM D5185m 1010 710 936 958 ppm Calcium ASTM D5185m 1070 ppm 1086 1154 1153 Phosphorus ASTM D5185m 1150 883 977 1053 ppm Zinc ppm ASTM D5185m 1270 1103 1262 1363 Sulfur ASTM D5185m 2060 2856 3224 3639 ppm CONTAMINANTS 6 Silicon ppm ASTM D5185m >25 3 5 Sodium ASTM D5185m 4 3 2 ppm Potassium ASTM D5185m >20 4 8 6 ppm % ASTM D3524 >3.0 <1.0 Fuel 0.8 <1.0 INFRA-RED Soot % % *ASTM D7844 >4 0.8 0.4 0.3 Nitration Abs/cm *ASTM D7624 >20 7.8 8.3 7.3 Sulfation Abs/.1mm *ASTM D7415 >30 19.1 20.6 20.3 FLUID DEGRADATION method >25 12.8 16.4 16.6

Abs/.1mm *ASTM D7414

Base Number (BN) mg KOH/g ASTM D2896 9.8

All component wear rates are normal. Contamination

Fuel content negligible. There is no indication of any contamination in the oil.

Fluid Condition

DIAGNOSIS

Recommendation

Wear

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

Oxidation

7.9

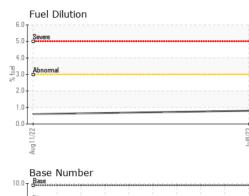
7.4

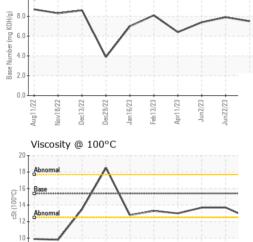
7.5



8. Aug11/22 Nov18/22

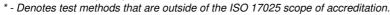
OIL ANALYSIS REPORT





Dec13/22

	VISUAL						
	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
	Silt	scalar	*Visual	NONE	NONE	NONE	NONE
	Debris	scalar	*Visual	NONE	NONE	NONE	NONE
	Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
0	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
2	dor	scalar	*Visual	NORML	NORML	NORML	NORML
	Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
	Free Water	scalar	*Visual		NEG	NEG	NEG
\wedge	FLUID PROPE	RTIES	method	limit/base	current	history1	history2
	Visc @ 100°C	cSt	ASTM D445		12.4	13.7	13.7
	GRAPHS						
	Ferrous Alloys						
	200						
Feb 13/23 Apr11/23 Jun2/23 Jun22/23	150 -						
JL A F							
	គ្គ 100						
	50	\					
\sim							
	Aug11/22 Nov18/22 Dec13/22 Dec29/22	Jan 16/23 Feb 13/23	Apr11/23 Jun2/23 Jun22/23	Jul8/23			
			Ap Ju	7			
	Non-ferrous Meta	c					
	140	15					
n13/ 11/ 122/	140 copper]		1 1 1				
Feb 13/23 Apr11/23 Jun2/23 Jun22/23	120 - copper lead	13					
Feb 13/ Apr1 1/ Jun2/ Jun22/	copper						
Feb 13/ Apr11/ Jun2/	120 100 80						
 Apri 1/ Jun2/ Jun22/	120 - copper lead 100 - tin						
 Apri ¹ /, Jun2/	120 100 80 60						
Feb13/ April 1/ Jun2/	120 100 100 60 40						
 Feb13/ April I/ Jun2/ Jun22/	120 100 100 60 40 20						
Feb13/ April 1/ Jun2/	120 100 100 60 40 20 0		123 223 203	2/3			
Feb13/ April 1/ Jun2/	120 100 100 60 40 20 0	Jan 16/23	April 1/23 Jun 2/23 Lun 2/22	Jul8/23			
Feb13/ April 1/ Jun2/	120 100 100 60 40 20 0	Jan 16/23	Apri 1/23	Jul823 H	Page Number		
Feb13/ April 1/ Jun2/	Aug 11/22 hov18/22 Dec/3	Jan 16/23	April 1/23	52/gm	Base Number		
Feb13/ April I/ Jun2/	¹²⁰ ¹⁰⁰	Jan 16/23	April 1/23 Jun 2/23 Jun 2/23				
Feb13/ April 1/ Jun2/	120 100 100 100 100 100 100 100	Jan 16/23	Apri 1/23	10.0			
Feb13/ April 1/ Jun2/	120 100 100 100 100 100 100 100	Jan 16/23	Apr11/23 Jun2/23 Jun2/223	10.0			
Feb13/ April 1/ Jun2/	120 100 100 100 100 100 100 100	Jan 16/23	Apri1/23 Jun2/23 Jun2/2023	10.0			
Feb13/ April 1/ Jun2/	120 100 100 100 100 100 100 100	Jan 16/23	April1/23 Jun22/23 Jun22/23	10.0			
Feb13/ April 1/ Jun2/	120 100 100 100 100 100 100 100	Jan 16/23	April 123 Jun2223 Jun2223	10.0 (0)(HOX) B(0) (0)(HOX) B(0) (0)(HOX) B(0) (0)(HOX) B(0)(HOX) (0)(HOX) B(0)(HOX) (0)(HOX) (0)(HOX) B(0)(HOX) (0)(H			
Feb13/ April 1/ Jun2/	120 100 100 100 100 100 100 100	Jan 16/23	April 1/23 Sun 2/29 Jun 2/20	0.0 8.0 0.0 KOH(0) 0.0 0.0 0.0 0.0			
Feb13/ April 1/ Jun2/	Copper lead	Jan 16/23 Frei 13/23		10.0 (0) 8.0 (0) HOX 0 (0) HOX 0 (0) 10 (0)	Base		
Feb13/ April I/ Jun2/	Copper lead	Jan 16/23 Frei 13/23		10.0 (0) 8.0 (0) HOX 0 (0) HOX 0 (0) 10 (0)	Base	623 (623 (323 1/23	223
Feb13/ April I/ Jun2/	¹²⁰ ¹⁰ ¹	Jan 16/23	Apri 1/23 Apri 1/23 Apri 1/23 Apri 1/23 Apri 1/23 Apri 1/23	10.0 (0)HOX 00() 9 munu 9 munu 9 see 2.0	Base	Dec29/22	Jun22/23
	120 100 100 100 100 100 100 100	Jan 16/23	April/23	10.0 (0,HO) Bull Jane Munup Action 200 200 200 200 200 200 200 200 200 20	Base Nov18/22 Dec13/22		
Laboratory Sample No.	Copper iead im iead iead iead iead iead iead iead iead	Jan 16/23	EZILIJA EZZUN Son Ave., Ca	10.0 (0,HO) Bull Jane Munup Action 200 200 200 200 200 200 200 200 200 20	Base Nov18/22 Dec13/22	onmental - 867 - Traff	
Laboratory Sample No. Lab Number	Copper ind ind ind ind ind ind ind ind	Jaul (6/23) Paul	EZZILIUM son Ave., Ca d : 14 c ed : 17 c	10.0 (0)HOX But and 4.0 (0)HOX But and 4.0 (0)HOX But and 4.0 (0) HOX BUT and 4.0 (0)	Base Nov18/22 Dec13/22	onmental - 867 - Traff	ord (Blount Hauli County Line I Trafford, J
Laboratory Sample No. Lab Number Unique Number	Copper 120 100 100 100 100 100 100 100	Taul (523 Taul (523) Taul (52) Taul	EZZZUM EZZZUM Son Ave., Ca d : 14 d ed : 17 d tician : Wes	ry, NC 27513 Jul 2023 S Davis	Base Nov18/22 Dec13/22	onmental - 867 - Traff 1130 (ord (Blount Hauli County Line I Trafford, J US 351
Laboratory Sample No. Lab Number	¹²⁰ ¹⁰ ¹	EZIGI INTER EZIGI	EZZZUNF Son Ave., Ca d : 14 d ed : 17 d tician : Wes relDilution, Po	ry, NC 27513 Jul 2023 s Davis ercentFuel)	GFL enviro	onmental - 867 - Traff	ord (Blount Hauli County Line Trafford, US 351 nathan Willian



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

F: