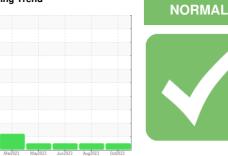


OIL ANALYSIS REPORT

Sample Rating Trend





Diesel Engine Fluid

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

SAMPLE INFORMATION method

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

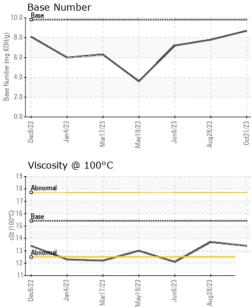
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFOR		method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0092788	GFL0080826	GFL0080783
Sample Date		Client Info		31 Oct 2023	28 Aug 2023	06 Jun 2023
Machine Age	hrs	Client Info		19405	335199	18293
Oil Age	hrs	Client Info		18293	335199	600
Oil Changed		Client Info		N/A	Not Changd	Changed
Sample Status				NORMAL	NORMAL	NORMAL
-				-		
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	0.9
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>120	6	7	32
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>5	<1	<1	0
Titanium	ppm	ASTM D5185m		0	0	<1
Silver	ppm	ASTM D5185m	>2	<1	<1	0
Aluminum	ppm	ASTM D5185m	>20	1	3	3
Lead	ppm	ASTM D5185m	>40	0	0	<1
Copper	ppm	ASTM D5185m	>330	<1	<1	<1
Tin	ppm	ASTM D5185m	>15	0	0	<1
Vanadium	ppm	ASTM D5185m		0	0	<1
Cadmium	ppm	ASTM D5185m		<1	0	0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	2	4	5
	ppm ppm					
Boron		ASTM D5185m	0	2	4	5
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	2 4	4	5 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	2 4 59	4 0 66	5 0 63
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	2 4 59 0	4 0 66 <1	5 0 63 <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 4 59 0 841	4 0 66 <1 1112	5 0 63 <1 992
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 4 59 0 841 986	4 0 66 <1 1112 1186	5 0 63 <1 992 1195
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	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 4 59 0 841 986 897	4 0 66 <1 1112 1186 1120	5 0 63 <1 992 1195 1061
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 4 59 0 841 986 897 1112	4 0 66 <1 1112 1186 1120 1360	5 0 63 <1 992 1195 1061 1370
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	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 0 1010 1070 1150 1270 2060	2 4 59 0 841 986 897 1112 3048	4 0 66 <1 1112 1186 1120 1360 3839	5 0 63 <1 992 1195 1061 1370 3954
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 4 59 0 841 986 897 1112 3048 current	4 0 66 <1 1112 1186 1120 1360 3839 history1	5 0 63 <1 992 1195 1061 1370 3954 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method	0 0 60 1010 1070 1150 1270 2060 kimit/base >25	2 4 59 0 841 986 897 1112 3048 current 5	4 0 66 <1 1112 1186 1120 1360 3839 history1 3	5 0 63 <1 992 1195 1061 1370 3954 history2 3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	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	0 0 60 1010 1070 1150 1270 2060 kimit/base >25	2 4 59 0 841 986 897 1112 3048 <u>current</u> 5 0	4 0 66 <1 1112 1186 1120 1360 3839 history1 3 2	5 0 63 <1 992 1195 1061 1370 3954 history2 3 1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25	2 4 59 0 841 986 897 1112 3048 current 5 0 1	4 0 66 <1 1112 1186 1120 1360 3839 history1 3 2 0	5 0 63 <1 992 1195 1061 1370 3954 history2 3 1 2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 imit/base >20	2 4 59 0 841 986 897 1112 3048 current 5 0 1 1	4 0 66 <1 1112 1186 1120 1360 3839 history1 3 2 0 history1	5 0 63 <1 992 1195 1061 1370 3954 history2 3 1 2 2 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 imit/base >20	2 4 59 0 841 986 897 1112 3048 <u>current</u> 5 0 1 1 <u>current</u> 0.1	4 0 66 <1 1112 1186 1120 1360 3839 history1 3 2 0 history1 0.1	5 0 63 <1 992 1195 1061 1370 3954 history2 3 1 2 history2 0.2
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 <i>limit/base</i> >25 >20 <i>limit/base</i> >4 >20	2 4 59 0 841 986 897 1112 3048 <i>current</i> 5 0 1 <i>current</i> 0.1 5.2	4 0 66 <1 1112 1186 1120 1360 3839 history1 3 2 0 history1 0.1 5.7	5 0 63 <1 992 1195 1061 1370 3954 history2 3 1 2 history2 0.2 7.9
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc 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 imit/base >25 imit/base >4 >20 >30	2 4 59 0 841 986 897 1112 3048 <i>current</i> 5 0 1 <i>current</i> 0.1 5.2 17.8	4 0 66 <1 1112 1186 1120 1360 3839 history1 3 2 0 history1 0.1 5.7 17.9	5 0 63 <1 992 1195 1061 1370 3954 history2 3 1 2 <u>history2</u> 0.2 7.9 20.3
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 D7844 *ASTM D7624	0 0 0 1010 1070 1150 1270 2060 2060 225 20 225 20 220 20 20 20 20 20 20 20 20 20 20 20	2 4 59 0 841 986 897 1112 3048 <u>current</u> 5 0 1 1 <u>current</u> 0.1 5.2 17.8	4 0 66 <1 1112 1186 1120 1360 3839 history1 3 2 0 history1 0.1 5.7 17.9 history1	5 0 63 <1 992 1195 1061 1370 3954 history2 3 1 2 history2 0.2 7.9 20.3 history2



OIL ANALYSIS REPORT

VISUAL



-		White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
		Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
$\langle $		Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
\sim		Silt	scalar	*Visual	NONE	NONE	NONE	NONE
		Debris	scalar	*Visual	NONE	NONE	NONE	NONE
		_ Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
May19/23 - Jun6/23 -	1/23 -		scalar	*Visual	NORML	NORML	NORML	NORML
May19/23 Jun6/23	Aug28/23 0ct31/23	Odor	scalar	*Visual	NORML	NORML	NORML	NORML
		Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
C		Free Water	scalar	*Visual	20.L	NEG	NEG	NEG
					11 - 11/1			
		FLUID PROPI		method	limit/base	current	history1	history2
************		Visc @ 100°C	cSt	ASTM D445	15.4	13.4	13.7	12.1
	/	GRAPHS						
~~~		Ferrous Alloys						
May19/23	23 -	35 iron	N					
May19/23 Jun6/23	Aug28/23	30 - nickel						
M	A	25-						
		<u>ق</u> 20		· · · · · ·				
		15						
		10						
		5-						
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		Dec8/22 Jan4/23 Mar17/23	May19/23	Jun6/23 Aug28/23	0ct31/23			
		2		Ju	00			
		Non-ferrous Meta	als					
		copper						
		8 - Internet lead						
		u dd						
		4						
		2-						
			And Personal Property in the local division of the local divisiono	The second se				
		0	19/23	n6/23	31/23			
			May19/23	Jun6/23	0ct31/23			
		CZU0000 Viscosity @ 100°		Jun6/23	0ct31/23	Base Number		
		Viscosity @ 100°		Jun6/23	EZ/16200	Base Number		
		Viscosity @ 100°		Jun6/23	10.0	Base		
		Viscosity @ 100°		Jun6/23	10.0	Base		
		Viscosity @ 100°		Jun6/23	10.0	Base		
		Viscosity @ 100°		Jun6/23	10.0	Base		
		Viscosity @ 100°		Jun623	10.0	Base		
		Viscosity @ 100°			0.0 3.8 6.0 9.0 pag	Base		
		Uiscosity @ 100°		Jun6/23	10.0 (b)HOX bul) Jaquiny See 2.0	Base		
		Viscosity @ 100°	c		10.0 (0,HO) ND (0,1) (0,HO) ND (0,HO) ND (Base		23
		Viscosity @ 100°	c		10.0 (0,HO) ND (0,1) (0,HO) ND (0,HO) ND (Base	lay 19/23	ug28/23 - 0c31/23 - 0c31/2
		Viscosity @ 100°			10.0 (b)HOX bul) Jaquiny See 2.0	Base	Mar/19/23	Aug28/23
	Laboratory	Viscosity @ 100° Abnomal C200° Abnomal C200° C	C EZIGI JAEW 501 Madia	EZUBUNG EZUBUNG Son Ave., Ca	10.0 (6)HOX bul 4.0 bul 900 900 6.0 bul 900 900 6.0 content 4.0 content 4.0 co	Base 	- 2	EZUEPO EZUEPO tal - 455 - Flint
	Sample No.	Viscosity @ 100° Abnomal Abnomal Citer Citrer Cit	C EZERIARE 501 Madia Received	EZUgunr EZUgunr Son Ave., Ca	10.0 (6)HOX but 50.0 (6)HOX bu	Base 	L Environmen 205	tal - 455 - Flint 1 W. Bristol Rd
	Sample No. Lab Number	Viscosity @ 100° Abnomal Abnomal Cityper Cit	C EC ECC FEE FEE FEE FEE FEE FEE FEE FEE	E20900F E20900F E20900F E20900F E20900F E20900F E20900F E20900F E20900F E20900F E20900F E20900F E20900F E20900F E20900F E20900F	10.0 (6)HOX but	Base 	L Environmen 205	tal - 455 - Flint 1 W. Bristol Rd nt Township, MI
	Sample No. Lab Number Unique Number	Viscosity @ 100° Viscosity @ 100°	C EZERIARE 501 Madia Received	E20900F E20900F E20900F E20900F E20900F E20900F E20900F E20900F E20900F E20900F E20900F E20900F E20900F E20900F E20900F E20900F	10.0 (6)HOX but 50.0 (6)HOX bu	Base 	L Environmen 205 Flir	tal - 455 - Flint 1 W. Bristol Rd 1t Township, Ml US 48507
Certificate 12367 To discuss this	Sample No. Lab Number Unique Number Test Package	Viscosity @ 100° Viscosity @ 100° Abnomal	C EZE LINK 501 Madia Received Diagnos Diagnost	Ezggung son Ave., Ca d : 03 I ed : 06 I itician : Wes	10.0 (0,000 yrunn) see 2.1 0.0 ry, NC 27513 Nov 2023 Nov 2023 s Davis	Base 	Environmen 205 Flir Contact: M	tal - 455 - Flint 1 W. Bristol Rd 1t Township, MI US 48507 ARK WOMBLE
To discuss this	Sample No. Lab Number Unique Number Test Package sample report,	Viscosity @ 100° Viscosity @ 100°	501 Madia Received Diagnos Diagnost	Ezgung son Ave., Ca d : 03 l ed : 06 l itician : Wes	10.0 (0) (0) (0) (0) (0) (0) (0) (0) (0) (0)	Base 	E Environmen 205 Flir Contact: M mwomb	4

Submitted By: MARK WOMBLE

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