

OIL ANALYSIS REPORT

Sample Rating Trend





Machine Id 813019 Component

Fluid

Diesel Engine

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

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

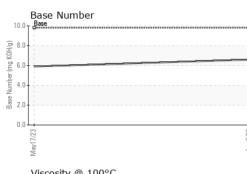
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

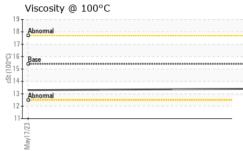
SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0086654	GFL0081437	
Sample Date		Client Info		07 Aug 2023	17 May 2023	
Machine Age	hrs	Client Info		2453	1894	
Oil Age	hrs	Client Info		1894	0	
Oil Changed		Client Info		Changed	Changed	
Sample Status				NORMAL	NORMAL	
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	
Glycol		WC Method	20.0	NEG	NEG	
-	0		11 11 11			
WEAR METAL	5	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>120	13	20	
Chromium	ppm	ASTM D5185m		<1	1	
Nickel	ppm	ASTM D5185m	>5	<1	3	
Titanium	ppm	ASTM D5185m	>2	0	0	
Silver	ppm	ASTM D5185m	>2	<1	<1	
Aluminum	ppm	ASTM D5185m	>20	0	1	
Lead	ppm	ASTM D5185m	>40	0	0	
Copper	ppm	ASTM D5185m	>330	4	12	
Tin	ppm	ASTM D5185m	>15	1	2	
Vanadium	ppm	ASTM D5185m		0	0	
Cadmium	ppm	ASTM D5185m		0	0	
ADDITIVES		method				history2
Boron	ppm	ASTM D5185m	limit/base	current 2	history1 3	history2
	ppm ppm					
Boron		ASTM D5185m	0	2	3	
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	2 0	3 0	
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	2 0 54	3 0 58	
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	2 0 54 <1	3 0 58 1	
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	2 0 54 <1 906	3 0 58 1 943	
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm 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 54 <1 906 993	3 0 58 1 943 1050	
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 0 54 <1 906 993 955	3 0 58 1 943 1050 975	
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 54 <1 906 993 955 1204	3 0 58 1 943 1050 975 1280	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	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 0 1010 1070 1150 1270 2060	2 0 54 <1 906 993 955 1204 3128	3 0 58 1 943 1050 975 1280 3143	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	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 ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	2 0 54 <1 906 993 955 1204 3128 current 3	3 0 58 1 943 1050 975 1280 3143 history1 5	
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 0 1010 1070 1150 1270 2060	2 0 54 <1 906 993 955 1204 3128 current	3 0 58 1 943 1050 975 1280 3143 history1	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20	2 0 54 <1 906 993 955 1204 3128 current 3 3 3	3 0 58 1 943 1050 975 1280 3143 history1 5 4 1	 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25	2 0 54 <1 906 993 955 1204 3128 current 3 3 1 2 current	3 0 58 1 943 1050 975 1280 3143 history1 5 4 1 1 history1	 history2 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	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	2 0 54 <1 906 993 955 1204 3128 <u>current</u> 3 3 1 <u>current</u> 0.6	3 0 58 1 943 1050 975 1280 3143 history1 5 4 1 1 history1 0.8	 history2 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 225 220 1imit/base >22 20	2 0 54 <1 906 993 955 1204 3128 <u>current</u> 3 3 1 <u>current</u> 0.6 8.0	3 0 58 1 943 1050 975 1280 3143 history1 5 4 1 1 history1 0.8 9.0	 history2 history2 history2
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 imit/base >25 imit/base >20 imit/base >20	2 0 54 <1 906 993 955 1204 3128 <u>current</u> 3 3 1 1 <u>current</u> 0.6 8.0 19.8	3 0 58 1 943 1050 975 1280 3143 history1 5 4 1 1 history1 0.8 9.0 21.8	 history2 history2 history2
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 D7844	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 0 54 <1 906 993 955 1204 3128 <i>current</i> 3 3 1 <i>current</i> 0.6 8.0 19.8 <i>current</i>	3 0 58 1 943 1050 975 1280 3143 history1 5 4 1 5 4 1 0.8 9.0 21.8 history1	 history2 history2 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAM	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7414	0 0 0 1010 1070 1150 1270 2060 imit/base >25 imit/base >20 imit/base >20	2 0 54 <1 906 993 955 1204 3128 <u>current</u> 3 3 1 0 0.6 8.0 19.8 <u>current</u> 15.7	3 0 58 1 943 1050 975 1280 3143 history1 5 4 1 5 4 1 1 0.8 9.0 21.8 history1 17.5	 history2 history2 history2
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 D7844	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 0 54 <1 906 993 955 1204 3128 <i>current</i> 3 3 1 <i>current</i> 0.6 8.0 19.8 <i>current</i>	3 0 58 1 943 1050 975 1280 3143 history1 5 4 1 5 4 1 0.8 9.0 21.8 history1	 history2 history2 history2 history2



OIL ANALYSIS REPORT

VISUAL





	White Metal						
	write wetai	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	
	Appearance	scalar	*Visual	NORML	NORML	NORML	
	Odor	scalar	*Visual	NORML	NORML	NORML	
	Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	
	Free Water	scalar	*Visual	20.2	NEG	NEG	
	FLUID PROPE		method	limit/base	current	history1	history
	Visc @ 100°C	cSt	ASTM D445	15.4	13.4	13.3	
	GRAPHS						
	Ferrous Alloys						
	iron						
	15 - nickel						
bpm	10						
d							
	5						
	Construction that the standard beaution the						
	0	***************************************		These areas			
	1/23			1/23 -			
	May17/23			Aug7/23			
		alc					
	Non-ferrous Meta	als					
	12 copper	als					
	12	als					
	12 copper	als					
	12 10 8	als					
	12 10 copper tin	als		/			
	12 10 10 10 10 10 10 10 10 10 10			/			
	12 10 8			/			
	12 10 10 10 10 10 10 10 10 10 10						
	12 10 10 10 10 10 10 10 10 10 10			g7/23			
	12 10 10 10 10 10 10 10 10 10 10			Aug7/23			
	12 10 10 10 10 10 10 10 10 10 10			Aug7/23	Base Numbe	r	
mqq	12 10 10 10 10 10 10 10 10 10 10				Base Numbe	r	
mqq	Viscosity @ 100°			10.	Base	r	
mqq	Viscosity @ 100°			10.	Base	r	
mqq	12 10 10 10 10 10 10 10 10 10 10			10.	D - Base	r	
mqq	12 10 10 10 10 10 10 10 10 10 10			10.	D - Base	r	
mqq	12 10 10 10 10 10 10 10 10 10 10			10.	D = Base	r	
cSt (100°C) ppm	Copper Copper			10.1 (0)HOX 60.1 9000 Jan dum, 2000 9000 Jan dum, 2000 9000 Jan dum, 2000 9000 Jan dum, 2000 9000 Jan dum, 2000 Ja	D = Base 	r	
cSt (100°C)	Viscosity @ 100° Base Abnomal			10. (8.1 (0,HQ) (6.1 (9.1 (9.1) (9.1	D = Base 	r	
cSt (100°C)	Copper Copper			10.0 (0)HO XO (0) Base Number 2,1	D - Base	r	
cSt (100°C)	12 12 12 12 12 12 12 12 12 12			10.1 (6)(HC)X (6), aquumy asse 8 2.1 0 (1)	D - Base	r	
cSt (100°C)	12 12 12 12 12 12 12 12 12 12			10.1 (6)(HC)X (6), aquumy asse 8 2.1 0 (1)	D - Base	r	
cSt (100°C)	Viscosity @ 100° Abnormal Abnormal	c		10.1 (0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0	Base Base EVEL EVEL Like W		
cSt (100°C)	Viscosity @ 100° Abnomal Abnomal Elife E	C 501 Madis		10.1 (0)HOX 0() (0)HOX 0()HOX 0() (0)HOX 0()HOX 0() (0)HOX 0()HOX 0(Base Base EVEL EVEL Like W	r nvironmental - 41	
cSt (100°C)	Viscosity @ 100° Abnomal Abnomal Elife E	C 501 Madia Received	d : 09 /	10.1 (0)HOX 0(1) (0)HOX 0(1) (0)HOX 0(1) (0)HOX 0(1) (0) (0) (0) (0) (0) (0) (0) (0) (0) (0	Base Base EVEL EVEL Like W	nvironmental - 415	6200 Elmri
cSt (100°C)	¹² ¹² ¹² ¹² ¹² ¹³ ¹⁴ ¹⁵ ¹⁵ ¹⁶ ¹⁷ ¹⁶ ¹⁷ ¹⁶ ¹⁷ ¹⁶ ¹⁷ ¹⁶ ¹⁷ ¹⁶ ¹⁷ ¹⁶ ¹⁶ ¹⁷ ¹⁷	C 501 Madia Received Diagnose	d : 09 /	10. (b)HOX 00)-aquury ese 2. 60. 61. 61. 61. 61. 61. 61. 61. 61	Base Base EVEL EVEL L L L L L L L L L L L L L	nvironmental - 415	6200 Elmri ling Heights
cSt (100°C) ppm	Viscosity @ 100° Abnomal Abnomal Elife E	C 501 Madia Received	d : 09 /	10.1 (0)HOX 0(1) (0)HOX 0(1) (0)HOX 0(1) (0)HOX 0(1) (0) (0) (0) (0) (0) (0) (0) (0) (0) (0	Base Base EVEL EVEL L L L L L L L L L L L L L	nvironmental - 415 Ster	5 - Michigan B 6200 Elmrid ling Heights US 48 ct: Frank Wo



 Certificate 12367
 Test Package
 : FLEET

 To discuss this sample report, contact Customer Service at 1-800-237-1369.
 * - Denotes test methods that are outside of the ISO 17025 scope of accreditation.

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

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