

OIL ANALYSIS REPORT

Sample Rating Trend





Machine Id **212004** Component **Diesel Engine**

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

DIAGNOSIS	
Recommendation	

Resample at the next service interval to monitor.

Fluid

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

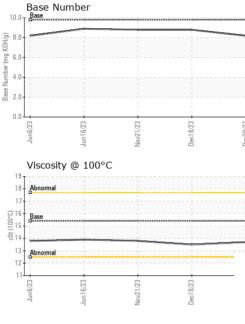
Fluid Condition

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

SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0105580	GFL0105738	GFL0089116
Sample Date		Client Info		20 Dec 2023	18 Dec 2023	21 Nov 2023
Machine Age	hrs	Client Info		7302	7277	7127
Oil Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		Changed	Changed	Not Changd
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>80	13	9	22
Chromium	ppm	ASTM D5185m	>5	<1	<1	<1
Nickel	ppm	ASTM D5185m	>2	<1	0	0
Titanium	ppm	ASTM D5185m		0	0	<1
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>30	1	1	8
Lead	ppm	ASTM D5185m	>30	0	<1	0
Copper	ppm	ASTM D5185m	>150	1	2	1
Tin	ppm	ASTM D5185m	>5	0	0	0
Vanadium	ppm	ASTM D5185m		0	<1	<1
Cadmium	ppm	ASTM D5185m		0	0	0
				U	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm		limit/base			-
		method ASTM D5185m		current	history1	history2
Boron	ppm	method ASTM D5185m	0	current 2	history1 0	history2 0
Boron Barium	ppm ppm	method ASTM D5185m ASTM D5185m	0 0 60	current 2 <1	history1 0 0	history2 0 0
Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	current 2 <1 59	history1 0 0 54	history2 0 0 57
Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	current 2 <1 59 <1	history1 0 0 54 0	history2 0 0 57 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	current 2 <1 59 <1 953	history1 0 54 0 840 963 889	history2 0 57 <1 977 1064 968
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 2 <1 59 <1 953 1067	history1 0 54 0 840 963	history2 0 0 57 <1 977 1064
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	0 0 60 0 1010 1070 1150	current 2 <1 59 <1 953 1067 1111	history1 0 54 0 840 963 889	history2 0 57 <1 977 1064 968
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 60 0 1010 1070 1150 1270	current 2 <1 59 <1 953 1067 1111 1284	history1 0 54 0 840 963 889 1070	history2 0 57 <1 977 1064 968 1320
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	0 0 60 1010 1070 1150 1270 2060	Current 2 <1 59 <1 953 1067 1111 1284 2980	history1 0 54 0 840 963 889 1070 2731	history2 0 0 57 <1 977 1064 968 1320 3090
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	current 2 <1 59 <1 953 1067 1111 1284 2980 current	history1 0 54 0 840 963 889 1070 2731 history1	history2 0 0 57 <1 977 1064 968 1320 3090 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS	method ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 limit/base	current 2 <1 59 <1 953 1067 1111 1284 2980 current 4	history1 0 0 54 0 840 963 889 1070 2731 history1 6	history2 0 0 57 <1 977 1064 968 1320 3090 history2 4
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 1010 1070 1150 1270 2060 limit/base	current 2 <1 59 <1 953 1067 1111 1284 2980 current 4 2	history1 0 54 0 840 963 889 1070 2731 history1 6 2	history2 0 0 57 <1 977 1064 968 1320 3090 history2 4 3
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 limit/base >20	current 2 <1 59 <1 953 1067 1111 1284 2980 current 4 2 <1	history1 0 0 54 0 840 963 889 1070 2731 history1 6 2 0 history1 6 2.0 history1 0.3	history2 0 0 57 <1 977 1064 968 1320 3090 history2 4 3 17 history2 0.8
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS	method ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 Imit/base >20	current 2 <1 59 <1 953 1067 1111 1284 2980 current 4 2 <1 current 4 2 <1 current	history1 0 54 0 840 963 889 1070 2731 history1 6 2 0 +history1	history2 0 0 57 <1 977 1064 968 1320 3090 history2 4 3 17 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 ppm ppm	method ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >20 20 limit/base	current 2 <1 59 <1 953 1067 1111 1284 2980 current 4 2 <1 ourrent 0.6	history1 0 0 54 0 840 963 889 1070 2731 history1 6 2 0 history1 6 2.0 history1 0.3	history2 0 0 57 <1 977 1064 968 1320 3090 history2 4 3 17 history2 0.8
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	method ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <i>imit/base</i> >20 <i>imit/base</i> >20	current 2 <1 59 <1 953 1067 1111 1284 2980 current 4 2 <1 ourrent 0.6 8.0	history1 0 0 54 0 840 963 889 1070 2731 history1 6 2 0 history1 0 .3 7.1	history2 0 0 57 <1 977 1064 968 1320 3090 history2 4 3 17 history2 0 0.8 7.6
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 200 200 200 320 320 33 200 230	current 2 <1 59 <1 953 1067 1111 1284 2980 current 4 2 <1 ourrent 0.6 8.0 19.1	history1 0 54 0 840 963 889 1070 2731 history1 6 2 0 history1 0 131 1070 2731	history2 0 0 57 <1 977 1064 968 1320 3090 history2 4 3 17 history2 0.8 7.6 19.9



OIL ANALYSIS REPORT



	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
Dec18/23 . Dec20/23 -	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Dec1	Odor	scalar	*Visual	NORML	NORML	NORML	NORML
	Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
	Free Water	scalar	*Visual		NEG	NEG	NEG
	FLUID PROPE	RTIES	method	limit/base	current	history1	history2
	Visc @ 100°C	cSt	ASTM D445	15.4	13.7	13.5	13.8
	GRAPHS						
	Ferrous Alloys						
	50 - iron		 				
	40						
,							
	30						
	20	\wedge					
	10						
	Jun6/23 -	Nov21/23 -	8/23 -	0/23 -			
	տոր Մոսե	Nov2	Dec18/23	Dec20/23			
	Non-ferrous Metal	s					
	10 copper 1		 				
	8 - Research lead						
	uii						
	6						
1	4						
	2			_			
		CO.	C.C.				
	Jun6/23 Jun16/23	Nov21/23	Jec18/23	lec20/23			
	~	_	De	De			
	Viscosity @ 100°C				Base Number	r	
	18 - Abnormal		1	10.	Base		-
	17-		·	₍₆ 8.	0-		
				KOH/g			
	Base 15- 3 14			B 6.	0		
1 10	S 14			aquin 4.	0		
	13 - Abnormal			ase N			
	12 -		·	° 2.	0		
	11						
	Jun6/23 Jun16/23	Nov21/23	Dec18/23	Dec20/23	Jun6/23 Jun16/23	Nov21/23	Dec18/23
	յու Մարէ	Nov	Dec	Dec	յու Մահ	Novi	Dec
aboratory ample No. ab Number nique Number	: 06043843	i01 Madii Recieved Diagnos Diagnosi	d : 22 ed : 27	ry, NC 2751 Dec 2023 Dec 2023 s Davis	3 GFL En	vironmental - 41	5 - Michigan Eas 6200 Elmridg rling Heights, M US 4831



Certificate L2367 **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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