

OIL ANALYSIS REPORT

{UNASSIGNED} 834102

Component Natural Gas Engine

PETRO CANADA DURON GEO LD 15W40 (--- GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

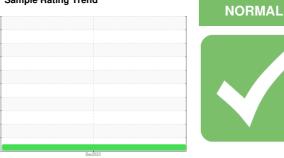
All component wear rates are normal.

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.



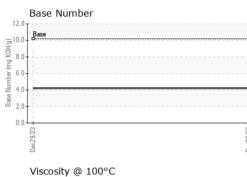
Sample Rating Trend

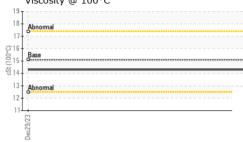


				Dec2023		
SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0092100		
Sample Date		Client Info		29 Dec 2023		
Machine Age	hrs	Client Info		589		
Oil Age	hrs	Client Info		589		
Oil Changed		Client Info		Changed		
Sample Status				NORMAL		
CONTAMINATI	ION	method	limit/base	current	history1	history2
Water		WC Method	>0.1	NEG		
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>50	27		
Chromium	ppm	ASTM D5185m	>4	<1		
Nickel	ppm	ASTM D5185m	>2	<1		
Titanium	ppm	ASTM D5185m		<1		
Silver	ppm	ASTM D5185m	>3	0		
Aluminum	ppm	ASTM D5185m	>9	6		
Lead	ppm	ASTM D5185m	>30	0		
Copper	ppm	ASTM D5185m	>35	16		
Tin	ppm	ASTM D5185m	>4	1		
Vanadium	ppm	ASTM D5185m		<1		
Cadmium	ppm	ASTM D5185m		0		
ADDITIVES		method				history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 9	history1	history2
	ppm ppm					
Boron		ASTM D5185m	50	9		
Boron Barium	ppm	ASTM D5185m ASTM D5185m	50 5	9 0		
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50	9 0 51		
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50 0	9 0 51 9		
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50 0 560	9 0 51 9 667		
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50 0 560 1510	9 0 51 9 667 1213	 	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50 0 560 1510 780	9 0 51 9 667 1213 627		
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50 0 560 1510 780 870	9 0 51 9 667 1213 627 859		
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	50 50 00 560 1510 780 870 2040	9 0 51 9 667 1213 627 859 2114		
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	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	50 50 50 560 1510 780 870 2040 >+100	9 0 51 9 667 1213 627 859 2114 current	 history1	 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	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	50 5 50 0 560 1510 780 870 2040 limit/base >+100	9 0 51 9 667 1213 627 859 2114 current	 history1	 history2
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 ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50 0 560 1510 780 870 2040 limit/base >+100	9 0 51 9 667 1213 627 859 2114 <u>current</u> 26 4	 history1	 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	50 50 0 560 1510 780 870 2040 limit/base >+100	9 0 51 9 667 1213 627 859 2114 <u>current</u> 26 4 35	 history1 	 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	50 5 50 0 560 1510 780 870 2040 Limit/base >20 Limit/base	9 0 51 9 667 1213 627 859 2114 <i>current</i> 26 4 35 <i>current</i>	 history1 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 ppm	ASTM D5185m ASTM D5185m	50 5 50 0 560 1510 780 870 2040 Limit/base >20 Limit/base	9 0 51 9 667 1213 627 859 2114 <i>current</i> 26 4 35 <i>current</i> 0	 history1 history1 history1	 history2 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	50 50 00 560 1510 780 870 2040 Iimit/base >+100 20 Iimit/base	9 0 51 9 667 1213 627 859 2114 226 4 35 26 4 35 <i>current</i> 0 11.6	 history1 history1 	history2 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 TS ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	50 50 560 1510 780 870 2040 Iinit/base >20 Iinit/base >20 Iinit/base	9 0 51 9 667 1213 627 859 2114 current 26 4 35 current 0 11.6 22.2	 history1 history1 history1	 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 TS ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624	50 5 50 0 560 1510 780 870 2040 limit/base >20 limit/base >20 limit/base >20	9 0 51 9 667 1213 627 859 2114 26 4 35 <u>current</u> 0 11.6 22.2	 history1 history1 history1 history1	 history2 history2 history2 history2



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	VISUAL		method	limit/base	current	history1	history2
	White Metal	scalar	*Visual	NONE	NONE		
	Yellow Metal	scalar	*Visual	NONE	NONE		
	Precipitate	scalar	*Visual	NONE	NONE		
	Silt	scalar	*Visual	NONE	NONE		
	Debris	scalar	*Visual	NONE	NONE		
	Sand/Dirt	scalar	*Visual	NONE	NONE		
Dec29/23	Appearance	scalar	*Visual	NORML	NORML		
Dec2	Odor	scalar	*Visual	NORML	NORML		
	Emulsified Water	scalar	*Visual	>0.1	NEG		
	Free Water	scalar	*Visual		NEG		
	FLUID PROPI	ERTIES	method	limit/base	current	history1	history2
	Visc @ 100°C	cSt	ASTM D445	15.1	14.3		
	GRAPHS						
	Ferrous Alloys						
	30 iron 1			1			
	25 - chromium						
	20-						
E	§ 15						
2	B 10						
	10						
	5						
	0-1			9/23 -			
	Dec29/23			Dec29/23			
	Non-ferrous Meta	als					
		15					
	14 - copper						
	12 tin						
	10						
	E 8-						
	6-						
	4						
	2-						
	٥Ц			~			
	Dec29/23			ec29/23			
		c		Dec			
	Viscosity @ 100°	C		12.0	Base Number		
	19				Base		
	¹⁹			10.0	Base		
Ę	19 18 Abnormal 17			10.0	Base		
	19 18 Abnormal 17			10.0	Base		
Lastru I. vo	19 18 Abnormal			10.0	Base		
	19 18 17 16 16 15 8 3 14			10.0 (b)HOX 8.0 Jack June Konstanting Base Munumb Base Munumb	Base		
	19 18 17 16 15 16 15 16 15 16 15 16 15 16 15 16 15 16 15 15 15 15 15 15 15 15 15 15			10.0	Base		
10040011-499	Abnormal Abnormal Base Base Abnormal Abnormal Abnormal			(D)HO) (D)HO) Jagunny 2.0 0.0	Base		
1.2.1001 + 494	Abnormal Abnormal Base Base Abnormal Abnormal Abnormal			(D)HO) (D)HO) Jagunny 2.0 0.0	Base		
10-000 Prove	19 18 17 16 16 15 16 16 15 14 Abnomal 16 16 16 16 16 16 16 16 16 16			(0)HO 2.0	Base		
Laboratory	Abnormal Abnormal Base Base Abnormal Abnormal Abnormal		son Ave., Ca	0.0 8.0 6.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9	Decc29/23	ironmental - 856	- Houston Sout
Laboratory Sample No.	Abnormal Abnormal Abnormal Base Abnormal Base is WearCheck USA - : GFL0092100	501 Madis Recieved	:03	(0)H03 (0)H03 bu aquuny aq	Decc29/23		- Houston Sout
Laboratory Sample No. Lab Number	Abnormal Abnormal Abnormal Base	501 Madis Recieved Diagnose	i : 03 . ed : 04 .	ry, NC 27513 Jan 2024 Jan 2024	Decc29/23		- Houston Sou ighway 6 Sou Houston, T
Laboratory Sample No.	Abnormal Abnormal Abnormal Base Abnormal Base is WearCheck USA - : GFL0092100	501 Madis Recieved	i : 03 . ed : 04 .	(0)H03 (0)H03 bu aquuny aq	Decc29/23	8515 H	- Houston Sou ighway 6 Sou

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