

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id 812046

Component Diesel Engine

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

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

Metal levels are typical for a new component breaking in.

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.

				0002020		
SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0069915	GFL0069943	
Sample Date		Client Info		04 Dec 2023	01 Mar 2023	
Machine Age	mls	Client Info		56216	31015	
Oil Age	mls	Client Info		0	0	
Oil Changed		Client Info		Changed	Changed	
Sample Status				NORMAL	NORMAI	
		method	limit/base	ourrent	history1	history?
CONTAMINAT					1 O	nistoryz
ruei			C<	<1.0	<1.0	
water		WC Wethod	>0.2	NEG	NEG	
GIYCOI		WC Wethod		NEG	NEG	
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	28	16	
Chromium	ppm	ASTM D5185m	>20	<1	<1	
Nickel	ppm	ASTM D5185m	>4	0	0	
Titanium	maa	ASTM D5185m		0	<1	
Silver	ppm	ASTM D5185m	>3	0	<1	
Aluminum	nom	ASTM D5185m	>20	4	7	
Lead	nnm	ASTM D5185m	>40	0	1	
Copper	nom	ASTM D5185m	<330 <	4	2	
Tin	ppm	AGTM D5185m	>15		~1	
Vanadium	ppm	ACTM DE105m	>15	0	0	
	ppiii	ASTIVI DJIOJII		U	0	
Codmum	0000	ACIMIN6106m		•	0	
Cadmium	ppm	ASTM D5185m		0	0	
ADDITIVES	ppm	Method	limit/base	0 current	0 history1	history2
ADDITIVES Boron	ppm ppm	ASTM D5185m method ASTM D5185m	limit/base 0	0 current 0	0 history1 10	 history2
ADDITIVES Boron Barium	ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m	limit/base 0 0	0 current 0 0	0 history1 10 0	history2
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 0 0 60	0 current 0 0 62	0 history1 10 0 55	 history2
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 0 0 60 0	0 current 0 0 62 <1	0 history1 10 0 55 2	 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 0 0 60 0 1010	0 current 0 0 62 <1 1009	0 history1 10 0 55 2 867	 history2
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 0 0 60 0 1010 1070	0 current 0 0 62 <1 1009 850	0 history1 10 0 55 2 867 1332	 history2
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 0 0 60 0 1010 1070 1150	0 current 0 0 62 <1 1009 850 866	0 history1 10 0 55 2 867 1332 932	 history2
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 0 0 60 0 1010 1070 1150 1270	0 current 0 0 62 <1 1009 850 866 1079	0 history1 10 0 55 2 867 1332 932 1186	 history2
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 0 60 0 1010 1070 1150 1270 2060	0 current 0 0 62 <1 1009 850 866 1079 2596	0 history1 10 0 55 2 867 1332 932 1186 3222	 history2
Cadmium ADDITIVES Boron Barium Molybdenum Maganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 0 0 60 0 1010 1070 1150 1270 2060	0 current 0 0 62 <1 1009 850 866 1079 2596 current	0 history1 10 0 55 2 867 1332 932 1136 3222 history1	 history2 history2
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	imit/base 0 0 0 0 0 0 1010 1070 1150 1270 2060 >25	0 current 0 0 62 <1 1009 850 866 1079 2596 current 3	0 history1 10 0 55 2 867 1332 932 1136 3222 history1 5	 history2 history2
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m Method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 0 0 0 1010 1070 1150 1270 2060 limit/base >25	0 current 0 0 62 <1 1009 850 866 1079 2596 current 3 <1	0 history1 10 0 55 2 867 1332 932 1186 3222 history1 5 2	 history2 history2
Cadmium ADDITIVES 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 method ASTM D5185m	limit/base 0 0 0 1010 1010 1070 1150 1270 2060 limit/base >25	0 current 0 0 62 <1 1009 850 866 1079 2596 current 3 <1 6	0 history1 10 0 55 2 867 1332 932 1136 3222 history1 5 2 2 16	history2 history2 history2
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m	imit/base 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 current 0 0 62 <1 1009 850 866 1079 2596 current 3 <1 6 current	0 history1 10 0 555 2 867 1332 932 1136 3222 history1 5 2 2 16 history1	 history2 history2 history2
Cadmium ADDITIVES 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	ASTM D5185m Method ASTM D5185m ASTM D5185m	limit/base 0 0 0 1010 1010 1070 1150 1270 2060 limit/base >20 limit/base	0 current 0 0 62 <1 1009 850 866 1079 2596 current 3 <1 6 current 12	0 history1 10 0 55 2 867 1332 932 1136 3222 history1 5 2 16 history1 0 5	 history2 history2 history2
Cadmium ADDITIVES 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	limit/base 0 0 60 1010 1010 1070 1150 1270 2060 limit/base >25 -20 limit/base >3 >20	0 current 0 0 62 <1 1009 850 866 1079 2596 current 3 <1 6 current 1.2 10.6	0 history1 10 0 55 2 867 1332 932 1136 3222 history1 5 2 16 history1 0.5 9,5	 history2 history2 history2
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulforian	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m	limit/base 0 0 0 1010 1070 1150 1270 2060 limit/base >25 	0 current 0 0 62 <1 1009 850 866 1079 2596 current 3 <1 6 current 1.2 10.6 23.8	0 history1 10 0 55 2 867 1332 932 1136 3222 history1 5 2 16 history1 0.5 9.5 20 6	 history2 history2 history2 history2
Cadmium ADDITIVES 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	imit/base 0 0 60 0 1010 1070 1150 1270 2060 imit/base >20 imit/base >20 3 >20 >3 >30	0 current 0 0 62 <1 1009 850 866 1079 2596 current 3 <1 6 current 1.2 10.6 23.8	0 history1 10 0 55 2 867 1332 932 1136 3222 history1 5 2 16 <u>history1</u> 0.5 9.5 20.6	 history2 history2 history2 history2 history2
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAE	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D7185M ASTM D7844 *ASTM D7624 *ASTM D7415 method	imit/base 0 0 0 1010 1070 1150 1270 2060 imit/base >25 1 3 20 imit/base >3 3 20 imit/base >3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	0 current 0 0 0 62 <1 1009 850 866 1079 2596 current 3 <10 6 current 1.2 10.6 23.8 current	0 history1 10 0 55 2 867 1332 932 1136 3222 history1 5 2 16 0.5 9.5 20.6 history1	 history2 history2 history2 history2 history2 history2
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAE Oxidation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7414	imit/base 0 0 60 0 1010 1070 1150 1270 2060 imit/base >20 imit/base >3 >20 imit/base >3 >20 imit/base >3 >20 imit/base >30	0 current 0 0 62 <1 1009 850 866 1079 2596 current 3 <1 6 current 1.2 10.6 23.8 current 19.7	0 history1 10 0 55 2 867 1332 932 1136 3222 history1 5 2 16 5 2 16 0.5 9.5 20.6 history1 17.9	history2



OIL ANALYSIS REPORT





							· · · · ·	,
		White Metal	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	
	c4/23	Appearance	scalar	*Visual	NORML	NORML	NORML	
	De	Odor	scalar	*Visual	NORML	NORML	NORML	
r		Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	
		Free Water	scalar	*Visual		NEG	NEG	
			DTIES	method	limit/base	current	history1	history?
						current	Thistory I	TIISTOLY2
		Visc @ 100°C	cSt	ASTM D445	15.4	14.3	13.2	
		GRAPHS						
		Ferrous Alloys						
		30 iron 1		_	_			
		25 - excession chromium	_					
		20						
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		10-						
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		2-						
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		r1/23			c4/23			
		W			De			
		Viscosity @ 100°C	2			Base Number		
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		10 Abnormal			0.0			
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		5314			mper			
		10			N 4.0	1		
		Abnormal			⁶⁶ 2.0			
		11						
		1/23			1/23 -	1/23		f/23 -
		Mar			Dec	Mar		Dect
4	Laboratory	: WearCheck USA - 5	501 Madis	son Ave., Ca	ry, NC 27513	GFL Envi	ronmental - 90	2 - Chilton HC
ANAB	Sample No.	: GFL0069915	Hecelved Diagnos	ן[[: ו סרי ה ב	Jec 2023			428 High St
TESTING LABORATORY	Unique Number	: 10779958	Diagnost	ician :We	s Davis			US 53014
Certificate L2367	Test Package	: FLEET					Contact	Keith Mueller
To discuss th	is sample report, o	contact Customer Servi	ice at 1-8	00-237-1369).		keith.muelle	r@gflenv.com
* - Denotes te	est methods that a	re outside of the ISO 1	7025 sco	pe of accred	itation.		Т: (920)374-1404

VISUAI method limit/base current history1 history2

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

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