

OIL ANALYSIS REPORT

Sample Rating Trend





Machine Id **1122M** Component **Diesel Engine** Fluid

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

DIAGNOSIS Recommendation

Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

Tests indicate that there is no fuel present in the oil. 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		GFL0101562	GFL0081392	GFL0068657
Sample Date		Client Info		10 Nov 2023	25 Apr 2023	24 Jan 2023
Machine Age	hrs	Client Info		12086	11616	10975
Oil Age	hrs	Client Info		11616	10975	10386
Oil Changed		Client Info		N/A	Changed	Changed
Sample Status				NORMAL	SEVERE	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>200	12	20	4
Chromium	ppm	ASTM D5185m	>20	1	2	<1
Nickel	ppm	ASTM D5185m	>2	<1	0	<1
Titanium	ppm	ASTM D5185m	>2	<1	0	0
Silver	ppm	ASTM D5185m	>2	<1	0	0
Aluminum	ppm	ASTM D5185m		2	3	<1
Lead	ppm	ASTM D5185m	>30	- <1	0	<1
Copper	ppm	ASTM D5185m		16	<1	2
Tin	ppm	ASTM D5185m	>15	<1	0	<1
Vanadium	ppm	ASTM D5185m	210	<1	<1	0
Cadmium	ppm	ASTM D5185m		<1	0	0
ADDITIVES	ppm		limit/base		-	
		method		current	history1	history2
Boron	ppm	ASTM D5185m	0	70	0	1
Barium	ppm	ASTM D5185m		1	0	0
Molybdenum	ppm	ASTM D5185m	60	42	48	59
Manganese	ppm	ASTM D5185m		2	<1	<1
Magnesium	ppm	ASTM D5185m	1010	493	752	972
Calcium	ppm	ASTM D5185m	1070	1606	845	1150
Phosphorus	ppm	ASTM D5185m	1150	935	787	989
Zinc	ppm	ASTM D5185m	1270	1076	1008	1287
Sulfur	ppm	ASTM D5185m	2060	3016	2565	3679
CONTAMINAN	ITS	method	limit/base	current	history1	history2
Silicon	ppm		>30	8	5	4
Sodium	ppm	ASTM D5185m		2	6	<1
Potassium	ppm	ASTM D5185m	>20	21	<1	2
Fuel	%	ASTM D3524	>3.0	0.2	15.6	<1.0
INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>3	0.1	0.3	0.1
Nitration	Abs/cm	*ASTM D7624	>20	5.0	10.4	5.1
Sulfation	Abs/.1mm	*ASTM D7415	>30	22.3	19.7	17.8
FLUID DEGRA	DATION	method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	19.5	19.2	13.2
Base Number (BN)	mg KOH/g	ASTM D2896		10.5	6.2	9.4
	ing itoring		5.0		0.1	0.1



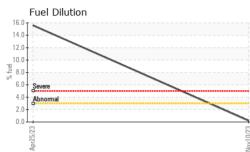
8. Jun8/21-

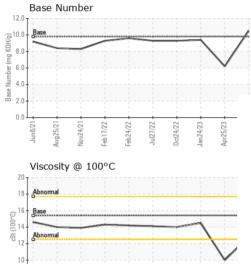
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Aug25/21. Nov24/21 Feb17/22

OIL ANALYSIS REPORT





		VISUAL		method				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
		Appearance Odor	scalar	*Visual	NORML	NORML	NORML	NORML
		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	ERTIES	method	limit/base	current	history1	history2
	\sim	Visc @ 100°C	cSt	ASTM D445	15.4	12.8	• 10.0	14.5
		GRAPHS						
		Ferrous Alloys						
2	3 3 4	20 iron		/				
Feb24/22 Jul27/22	0ct24/22 Jan24/23 Apr25/23	15 - Transmission chromium			\mathbf{N}			
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	\sim	Jun8/21 Aug25/21 Nov24/21 Feb17/22	Feb24/22 Jul27/22	0ct24/22 Jan24/23 Apr25/23	Nov10/23			
		Non-ferrous Meta	ls		-			
Feb24/22 · Jul27/22 ·	0ct24/22 . Jan24/23 . Apr25/23 .	16	1 1	1 1 1	1			
Feb2 Jul2	Oct2 Jan2 Apr2	14 copper						
		Research lead	1 1					
		12 - tin						
		12- 10-		^	1			
		12 - tin		\wedge				
		12- 10-		\wedge				
		12- 10-						
		12 10 5 8 6 4 2 0						
		12 10 5 8 6 4 2 0	b24/22	124/22 124/23 126/23	v10/23			
		12 10 10 10 10 10 10 10 10 10 10	reh24/22	0ct24/22 Jan24/23 An226/23	Nov10/23			
		Viscosity @ 100°		0ci24/22 Jan24/23 Apr25/23	2001/09/ 12.0	Base Number	r	
		Viscosity @ 100°0		0ct24/22 Jan24/23 Apr25/23	12.0	Ĩ.	r	
		Viscosity @ 100°C		0et24/22 Jan24/23 Apr25/23	12.0	Base	r	/
		Viscosity @ 100°C		0af24/2 Jan24/23 Apr25/23	12.0	Base		
		Pead tin tin tin tin tin tin tin tin tin tin		0dt24/22 Jan24/23 Apr25/23	12.0	Base	r	
		Viscosity @ 100°0		0ct24,72 Jan24,23 Apr25,73	12.0	0	r	
		12 10 10 10 10 10 10 10 10 10 10		0ct24/22 Jan24/23	12.0 (0) 8.0 (0) 8.0 (0) 8.0 (0) 8.0 (0) 8.0 (0) 9.0 (0) 12.0 (0) 12.0 (0) 12.0 (0) 12.0 (0) 12.0 (0) 10.0 (0) (0) 10.0 (0) (0) (0) (0) (0) (0) (0) (0) (0) (0		r	
		Pead tin tin tin tin tin tin tin tin tin tin			12.0 (0,4) 00 00 (0,4) 00 00 00 (0,4) 00 (0,4			
		Pead tin tin tin tin tin tin tin tin tin tin	C		12.0 (0)HOX 80 (0)HOX 80 (5423 5523 1023
		12 10 10 10 10 10 10 10 10 10 10		0ct24/22 0ct24/22 0ct24/22 0ct24/23 0ct24/20 0ct	12.0 (0)HOX Bull 10,0 (0)HOX BULL 10,0 (Jan24/23 Jan24/23 Apr25/23
	laboratory	¹² ¹⁰	Feb24/22 0	0ct24/22	12.0 (b)HOX Bul) a 6.0 (b)HOX Bul) a 6.0 (b)HOX Bul) a 6.0 (b)HOX Bul) a 6.0 (b)HOX Bul) a 6.0 (c)HOX	Jun821 Aug25/21	Feb17/22	
	Laboratory Sample No.	Pead tin tin tin tin tin tin tin tin tin tin	Feb24/22 0	Decarta 2 Decarta 2 Dec	12.0 (b)HOX Bul) a 6.0 (b)HOX Bul) a 6.0 (b)HOX Bul) a 6.0 (b)HOX Bul) a 6.0 (b)HOX Bul) a 6.0 (c)HOX	Jun821 Aug25/21		5 - Michigan East
	Sample No. Lab Number	Viscosity @ 100° WearCheck USA - GFL0101562 : 06005221	C Transformed and the second and th	CZ1+2200 CZ1+2000 CZ1+2000 CZ1+2000 CZ1+2000 CZ1+20	12.0 10.0	Jun821 Aug25/21	27/17/2 	5 - Michigan East 6200 Elmridge ling Heights, MI
	Sample No. Lab Number Unique Numbe	Viscosity @ 100° WearCheck USA - : GFL0101562 : 06005221 er : 10738983	C T T T T T T T T T T T T T	EZEPAZIER CZ4P200 Son Ave., Ca d : 13 l ed : 15 l tician : Dor	12.0 10.0	Jun821 Aug25/21	ZZ/L/2 vironmental - 415 Ster	5 - Michigan East 6200 Elmridge ling Heights, MI US 48313
Certificate 12367	Sample No. Lab Number Unique Numbe Test Packag	Viscosity @ 100° WearCheck USA - : GFL0101562 : 06005221 er : FLEET (Additional	C Totagnost Tests: Per	son Ave., Ca d : 13 l ed : 15 l tician : Dor ercentFuel)	12.0 10.0	Jun821 Aug25/21	ZZZ/ZGA vironmental - 415 Ster Conta	5 - Michigan East 6200 Elmridge ling Heights, MI US 48313 ct: Frank Wolak
o discuss th	Sample No. Lab Number Unique Numbe Test Packag his sample report	Viscosity @ 100° WearCheck USA - : GFL0101562 : 06005221 er : 10738983	501 Madia Received Diagnost Tests: Perice at 1-8	zzHzzer son Ave., Ca d : 13 l ed : 15 l tician : Dor ercentFuel) 200-237-1365	12.0 10.0	Jun821 Aug25/21	ZZZIZIG vironmental - 415 Ster Conta fwol	5 - Michigan East 6200 Elmridge ling Heights, MI US 48313