

OIL ANALYSIS REPORT

Sample Rating Trend





Machine Id 928051

Fluid

Component
Diesel Engine

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

SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0108853	GFL0101472	GFL0101545
Sample Date		Client Info		24 Jan 2024	30 Nov 2023	17 Nov 2023
Machine Age	hrs	Client Info		18384	17908	17820
Oil Age	hrs	Client Info		17908	17820	16577
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ON	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<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	>120	50	23	18
Chromium	ppm	ASTM D5185m	>20	1	<1	<1
Nickel	ppm	ASTM D5185m	>5	1	<1	<1
Titanium	ppm	ASTM D5185m		0	0	<1
Silver	ppm	ASTM D5185m		0	<1	0
Aluminum	ppm	ASTM D5185m		8	3	4
Lead		ASTM D5185m		1	0	<1
	ppm			، <1	66	1
Copper	ppm	ASTM D5185m				
Tin Mars a diama	ppm	ASTM D5185m	>10	<1	<1	<1
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	<1
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		2	3	0
Barium	ppm	ASTM D5185m	0	<1	2	9
Molybdenum	ppm	ASTM D5185m	60	57	58	63
Manganese	ppm	ASTM D5185m	0	<1	<1	<1
Magnesium	ppm	ASTM D5185m	1010	852	862	913
Calcium	ppm	ASTM D5185m	1070	973	1066	1092
Phosphorus	ppm	ASTM D5185m	1150	870	879	980
Zinc	ppm	ASTM D5185m	1270	1140	1148	1201
Sulfur	ppm	ASTM D5185m	2060	2113	3731	2600
	те	method	limit/base		historv1	historv2
CONTAMINAN	10	method	iiiiii/base	current	. notory i	
CONTAMINAN Silicon	ppm	ASTM D5185m		6	6	6
					,	,
Silicon	ppm	ASTM D5185m	>25	6	6	6
Silicon Sodium	ppm ppm	ASTM D5185m ASTM D5185m	>25	6 6	6	6 3 3
Silicon Sodium Potassium	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	>25 >20	6 6 3	6 2 4	6 3 3
Silicon Sodium Potassium INFRA-RED	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m method	>25 >20 limit/base >4	6 6 3 current	6 2 4 history1	6 3 3 history2
Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m method *ASTM D7844	>25 >20 limit/base >4 >20	6 6 3 current 2.7	6 2 4 history1 1.2	6 3 3 history2 1.3
Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm % Abs/cm Abs/.1mm	ASTM D5185m ASTM D5185m ASTM D5185m method *ASTM D7844 *ASTM D7624 *ASTM D7415	>25 >20 limit/base >4 >20	6 6 3 current 2.7 11.7	6 2 4 history1 1.2 9.8	6 3 3 history2 1.3 8.8 21.2
Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm % Abs/cm Abs/.1mm	ASTM D5185m ASTM D5185m ASTM D5185m method *ASTM D7844 *ASTM D7624 *ASTM D7415	>25 >20 limit/base >4 >20 >30 limit/base	6 6 3 current 2.7 11.7 26.0	6 2 4 history1 1.2 9.8 21.9	6 3 3 history2 1.3 8.8

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

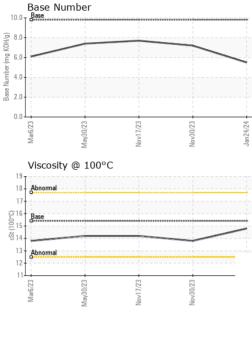
There is no indication of any contamination in the oil.

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.



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	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
Nov17/23 Nov30/23	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Nov	0001	scalar	*Visual	NORML	NORML	NORML	NORML
	Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
	Free Water	scalar	*Visual		NEG	NEG	NEG
	FLUID PROP	PERTIES	method	limit/base	current	history1	history2
	Visc @ 100°C	cSt	ASTM D445	15.4	14.8	13.8	14.2
	GRAPHS						
	Ferrous Alloys						
23	iron						
Nov17/23 Nov30/23	40 - nickel						
~ ~	30 -						
	mqq		1				
	20						
	10						
	internet 2 23	23	23	24			
	Mar6/23 May30/23	Vov17/23	Nov30/23	Jan 24/24			
	2	Ň	2				
		h = 1 =		-			
	Non-ferrous Met	tals					
	70 copper	tals	Λ				
	60 - copper 60 - lead	tals	\wedge				
	60 50	tals	\wedge				
	60 50	tals	\wedge				
	60 50 40 30	tals	\bigwedge				
	70 60 50 40 30 20	tals	\wedge				
	70 60 50 40 30 20 10	tals	\bigwedge				
	70 60 50 40 30 20 0	/	23				
	70 60 50 40 30 20 0	/	0030023				
	70 60 50 40 30 20 10	Public Participation (Control of Control of	Nov30/23	Jan 24/2 Harris	Baco Number		
	70 60 50 40 20 10 50 50 50 50 50 50 50 50 50 5	Public Participation (Control of Control of	Nov30/23		Base Number		
	70 60 50 40 20 10 50 50 50 50 50 50 50 50 50 5	Public Participation (Control of Control of	Nov:3023	+Z/+Z/uer	Base		
	70 60 50 40 20 10 20 10 Viscosity @ 100 19 18 Abnormal 17	Public Participation (Control of Control of	Nov30/23	+Z/+Z/uer	Base		
	70 60 50 40 20 10 20 10 Viscosity @ 100 19 18 Abnormal 17	Public Participation (Control of Control of	Noc2023	+Z/+Z/uer	Base		
	Viscosity @ 100	Public Participation (Control of Control of	Nov3023	+Z/+Z/uer	Base		
	Viscosity @ 100	Public Participation (Control of Control of	Nov3023	+Z/+Z/uer	Base		
	Viscosity @ 100	Public Participation (Control of Control of	Nov30/23	Jan24/24	Base		
	Viscosity @ 100	°C		10.0 bit 20152 bit 20152 b	Base		
	Viscosity @ 100	°C		10.0 bit 20152 bit 20152 b	Base	1723	30/23
	Viscosity @ 100	Public Participation (Control of Control of	Nov30/23	10.0 472/472/1472/147 (0,100/140/140/140/140/140/140/140/140/140/	Base	Nov11/23	Mov30/23
	Viscosity @ 100	Nov17/23	Nov30/23	10.0 +72+72-10-10 (0/HOIX) Buil and 4.0 +72+72-10 +72+72-10 -10.0	Base EZ/05/12 EZ/05/12 Wal		
Laborator Sample No	y : WearCheck USA	Nov17/23	ECOREMAN Son Ave., Ca	10.0 +72+72-10-10 (0/HOX) Buil and 4.0 +72+72-10 +72+72-10 +72+72-10 +72+72-10 -10.0	Base EZ/05/12 EZ/05/12 Wal	ezi/Livoy rironmental - 415	
Sample No Lab Numb	y : WearCheck USA o. : GFL0108853 : 06071357	°C EZLIMAN - 501 Madia Recieved Diagnose	son Ave., Ca d : 26 . ed : 26 .	10.0 (0)HOY Bul Jaquink eeg 2.0 +72H2UEF 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.	Base EZ/05/12 EZ/05/12 Wal	vironmental - 41	5 - Michigan E 6200 Elmrid ling Heights,
Sample No	y : WearCheck USA 0. : GFL0108853 per : 106071357 nber : 10848034	°C EZLINON - 501 Madis Recieved	son Ave., Ca d : 26 . ed : 26 .	10.0 (0)H00 bu) Jaquinki ese 2.0 +72H2CH2 ury, NC 27513 Jan 2024	Base EZ/05/12 EZ/05/12 Wal	rironmental - 415 Ster	5 - Michigan E 6200 Elmrid

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

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