

OIL ANALYSIS REPORT

Sample Rating Trend



427185 - SW4726

Component Diesel Engine

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

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor. (Customer Sample Comment: Engine) $% \label{eq:commutative}$

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

Fluid Condition

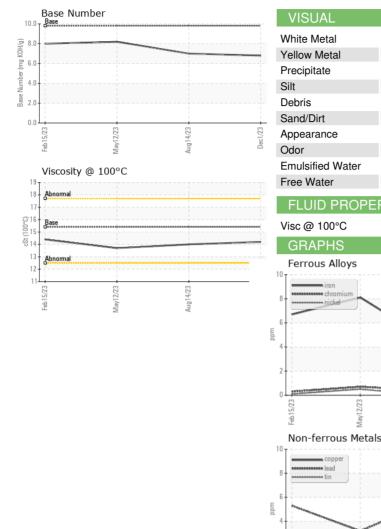
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is acceptable for the time in service.

Oil Age r Oil Changed Sample Status CONTAMINATIO Fuel Water Glycol WEAR METALS Iron p Chromium p	mls mls DN	method Client Info Client Info Client Info Client Info Client Info WC Method WC Method WC Method WC Method	limit/base limit/base >5 >0.2 limit/base	Current GFL0094067 01 Dec 2023 340528 340528 Not Changd NORMAL NORMAL current <1.0 NEG NEG	history1 GFL0089393 14 Aug 2023 332852 332852 Changed NORMAL history1 <1.0 NEG	history2 GFL0075403 12 May 2023 323245 323245 N/A NORMAL history2 <1.0 NEG
Sample Date Machine Age r Oil Age r Oil Changed Sample Status CONTAMINATIC Fuel Water Glycol WEAR METALS Iron p Chromium p	opm	Client Info Client Info Client Info Client Info WC Method WC Method WC Method	>5 >0.2	01 Dec 2023 340528 340528 Not Changd NORMAL current <1.0 NEG	14 Aug 2023 332852 332852 Changed NORMAL history1 <1.0 NEG	12 May 2023 323245 323245 N/A NORMAL history2 <1.0
Machine Age r Oil Age r Oil Changed Sample Status CONTAMINATIO Fuel Water Glycol WEAR METALS Iron p Chromium p Nickel p	opm	Client Info Client Info Client Info Method WC Method WC Method	>5 >0.2	340528 340528 Not Changd NORMAL current <1.0 NEG	332852 332852 Changed NORMAL history1 <1.0 NEG	323245 323245 N/A NORMAL history2 <1.0
Oil Age r Oil Changed Sample Status CONTAMINATIO Fuel Water Glycol WEAR METALS Iron p Chromium p	opm	Client Info Client Info method WC Method WC Method WC Method	>5 >0.2	340528 Not Changd NORMAL current <1.0 NEG	332852 Changed NORMAL history1 <1.0 NEG	323245 N/A NORMAL history2 <1.0
Oil Changed Sample Status CONTAMINATIC Fuel Water Glycol WEAR METALS Iron p Chromium p	DN	Client Info method WC Method WC Method WC Method	>5 >0.2	Not Changd NORMAL current <1.0 NEG	Changed NORMAL history1 <1.0 NEG	N/A NORMAL history2 <1.0
Sample Status CONTAMINATIC Fuel Water Glycol WEAR METALS Iron Chromium p	opm	method WC Method WC Method WC Method	>5 >0.2	NORMAL current <1.0 NEG	NORMAL history1 <1.0 NEG	NORMAL history2 <1.0
CONTAMINATIC Fuel Water Glycol WEAR METALS Iron p Chromium p	opm	WC Method WC Method WC Method	>5 >0.2	current <1.0 NEG	history1 <1.0 NEG	history2 <1.0
Fuel Water Glycol WEAR METALS Iron p Chromium p Nickel p	opm	WC Method WC Method WC Method	>5 >0.2	<1.0 NEG	<1.0 NEG	<1.0
Water Glycol WEAR METALS Iron p Chromium p Nickel p		WC Method WC Method	>0.2	NEG	NEG	
Glycol WEAR METALS Iron p Chromium p Nickel p		WC Method		-		NEG
WEAR METALS			limit/base	NEG	NEC	
ron p Chromium p Nickel p		method	limit/base		NEG	NEG
Chromium p Nickel p				current	history1	history2
Nickel p	opm	ASTM D5185m	>100	4	5	8
	opm	ASTM D5185m	>20	0	<1	<1
Fitanium p	opm	ASTM D5185m	>4	<1	0	<1
	opm	ASTM D5185m		0	<1	0
Silver p	opm	ASTM D5185m	>3	0	<1	<1
Aluminum p	opm	ASTM D5185m	>20	2	1	2
_ead p	opm	ASTM D5185m	>40	4	6	3
Copper p	opm	ASTM D5185m	>330	1	2	2
Fin p	opm	ASTM D5185m	>15	0	<1	1
/anadium p	opm	ASTM D5185m		0	<1	<1
Cadmium p	opm	ASTM D5185m		0	<1	0
ADDITIVES		method	limit/base	current	history1	history2
Boron p	opm	ASTM D5185m	0	<1	0	<1
Barium p	opm	ASTM D5185m	0	0	0	0
Molybdenum p	opm	ASTM D5185m	60	45	46	43
Manganese p	opm	ASTM D5185m	0	<1	<1	<1
Aagnesium p	opm	ASTM D5185m	1010	10	10	29
Calcium p	opm	ASTM D5185m	1070	2516	2669	3205
Phosphorus p	opm	ASTM D5185m	1150	1083	1108	1261
Zinc p	opm	ASTM D5185m	1270	1305	1337	1528
Sulfur p	opm	ASTM D5185m	2060	3200	3948	4434
CONTAMINANTS	S	method	limit/base	current	history1	history2
Silicon p	opm	ASTM D5185m	>25	6	6	8
Sodium p	opm	ASTM D5185m		2	3	3
Potassium p	opm	ASTM D5185m	>20	2	2	2
INFRA-RED		method	limit/base	current	history1	history2
Soot % %	%	*ASTM D7844	>3	0.2	0.2	0.3
Nitration A	Abs/cm	*ASTM D7624	>20	7.7	8.1	8.6
Sulfation A	Abs/.1mm	*ASTM D7415	>30	18.2	19.2	20.3
FLUID DEGRADA	ATION	method	limit/base	current	history1	history2
Oxidation A	Abs/.1mm	*ASTM D7414	>25	10.2	9.9	9.7
Base Number (BN)	ng KOH/g	ASTM D2896	9.8	6.8	7.0	8.2



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



Certificate L2367	Laboratory Sample No. Lab Number Unique Number Test Package		501 Madis Received Diagnose Diagnost	l :08 ed :11	ry, NC 2751 Dec 2023 Dec 2023 n Baldridge	3 GFL Envir	GFL Environmental - 983 - Sugar Land Haulin 16011 West Belfort Stree Sugar Land, TX US 77498 Contact: Gino Griego ggriego@gflenv.con		
		Feb 15/23		Aug14/23	0 Dec1/23	Feb15/23	Auro14/23		
		13 Abnormal			Base N ase	.0 -			
		()-001 15 14			Base Number (mg KOH/g)	.0			
		Base			ور ه و	.0 -			
		17-			(B∮	.0-			
		19 18 Abnormal			10				
		Viscosity @ 100°	°C			Base Number			
		Feb15/23 May12/23		Aug 14/23	Dec1/23				
			and the second sec	23	23				
		2-							
		4	ANTONDANYANYAAN		The and the second s				
		G udd	- Marrent	No. of Concession, Name					
		8 - tin							
		10 copper							
		Non-ferrous Met	als						
		Feb 15/23 May 12/23		Aug 14/23	Dec1/23				
			addungadiungadungdan Tungungadan Tungungadan						
		2							
		4-							
		E 6							
	Aug 14/23	8 - nickel							
	1								
		GRAPHS Ferrous Alloys							
		Visc @ 100°C	cSt	ASTM D445	15.4	14.2	14.0	13.7	
		FLUID PROP	ERTIES	method	limit/base	current	history1	history2	
		Free Water	scalar	*Visual		NEG	NEG	NEG	
		Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG	
	Aug14/23 Dec1/23	Odor	scalar	*Visual	NORML	NORML	NORML	NORML	
ç	23 23 23 23 23 23 23 23 23 23 23 23 23 23 23 23 23	Sand/Dirt Appearance	scalar scalar	*Visual *Visual	NONE NORML	NONE NORML	NONE NORML	NONE NORML	
		Debris	scalar	*Visual	NONE	NONE	NONE	NONE	
	Silt		*Visual	NONE	NONE	NONE	NONE		
		Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE	
		Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE	
		White Metal	scalar	*Visual	NONE	NONE		NONE	

Report Id: GFL983 [WUSCAR] 06029139 (Generated: 12/12/2023 01:02:34) Rev: 1

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Submitted By: TECHNICIAN ACCOUNT

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