

OIL ANALYSIS REPORT

Sample Rating Trend





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

There is no indication of any contamination in the oil.

Fluid Condition

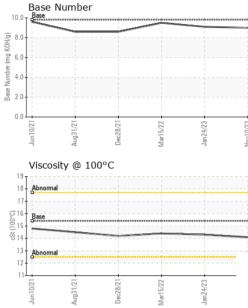
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0101564	GFL0068626	GFL0047655
Sample Date		Client Info		10 Nov 2023	24 Jan 2023	15 Mar 2022
Machine Age	hrs	Client Info		18368	16245	13864
Oil Age	hrs	Client Info		16245	13864	13283
Oil Changed		Client Info		N/A	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	c	method	limit/base	current	history1	history2
Iron Chromium	ppm	ASTM D5185m	>200	6 <1	7	8
	ppm	ASTM D5185m				<1
Nickel	ppm	ASTM D5185m	>2	<1	<1	0
Titanium Silver	ppm	ASTM D5185m	>2	<1 <1	0	0
Aluminum	ppm	ASTM D5185m ASTM D5185m	>2	<1 2	0	3
Lead	ppm	ASTM D5185m ASTM D5185m	>30	2 <1	4 <1	0
	ppm	ASTM D5185m		3	2	4
Copper Tin	ppm	ASTM D5185m	>15	ہ <1	<1	4 <1
Antimony	ppm	ASTM D5185m	>10	<1 	< 1	< 1
Vanadium	ppm	ASTM D5185m		 <1	0	0
Cadmium	ppm ppm	ASTM D5185m		<1	0	0
ADDITIVES	ррш	method	limit/base		history1	history2
				current		
Boron	ppm	ASTM D5185m	0	3	<1	3
Barium	ppm	ASTM D5185m	0	<1	0	0
Molybdenum	ppm	ASTM D5185m	60	60	59	59
Manganese	ppm	ASTM D5185m	0	<1	<1	<1
Magnesium	ppm	ASTM D5185m	1010	910	955	967
Calcium	ppm	ASTM D5185m	1070	1086	1148	1147
Phosphorus	ppm	ASTM D5185m	1150	1017	979	1043
Zinc	ppm	ASTM D5185m ASTM D5185m	1270 2060	1208	1275 3521	1292
Sulfur		ASTINITISTASI				2527
	ppm			3092		
CONTAMINAN		method	limit/base	current	history1	history2
Silicon		method ASTM D5185m		current 4	history1 3	history2 4
Silicon Sodium	TS	method ASTM D5185m ASTM D5185m	limit/base	current 4 0	history1 3 1	history2 4 <1
Silicon	TS ppm	method ASTM D5185m	limit/base	current 4	history1 3	history2 4
Silicon Sodium	TS ppm ppm	method ASTM D5185m ASTM D5185m	limit/base >30	current 4 0	history1 3 1	history2 4 <1
Silicon Sodium Potassium	TS ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	limit/base >30 >20	current 4 0 2	history1 3 1 2	history2 4 <1 3
Silicon Sodium Potassium INFRA-RED	TS ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m method	limit/base >30 >20 limit/base	current 4 0 2 current	history1 3 1 2 history1	history2 4 <1 3 history2
Silicon Sodium Potassium INFRA-RED Soot %	TS ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m method	limit/base >30 >20 limit/base >3	current 4 0 2 current 0.2	history1 3 1 2 history1 0.3	history2 4 <1 3 history2 0.6
Silicon Sodium Potassium INFRA-RED Soot % Nitration	TS ppm ppm ppm % Abs/cm Abs/.1mm	method ASTM D5185m ASTM D5185m ASTM D5185m method *ASTM D7844 *ASTM D7624	limit/base >30 >20 limit/base >3 >20	current 4 0 2 current 0.2 5.8	history1 3 1 2 history1 0.3 6.8	history2 4 <1 3 history2 0.6 7.8
Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	TS ppm ppm ppm % Abs/cm Abs/.1mm	method ASTM D5185m ASTM D5185m ASTM D5185m *ASTM D7844 *ASTM D7624 *ASTM D7415	limit/base >30 >20 limit/base >3 >20 >30	current 4 0 2 current 0.2 5.8 18.3	history1 3 1 2 history1 0.3 6.8 18.4	history2 4 <1 3 history2 0.6 7.8 20.2
Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAE	TS ppm ppm ppm % Abs/cm Abs/cm Abs/1mm	method ASTM D5185m ASTM D5185m ASTM D5185m *ASTM D7844 *ASTM D7624 *ASTM D7624 Method	limit/base >30 >20 limit/base >3 >20 >30 limit/base	current 4 0 2 current 0.2 5.8 18.3 current	history1 3 1 2 history1 0.3 6.8 18.4 history1	history2 4 <1 3 history2 0.6 7.8 20.2 history2



OIL ANALYSIS REPORT

VISUAL



			000	VISUAL	· · · · · · · · · · · · · · · · · · ·					
				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
//21	/22	/23	/23	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Dec28/2	Mar15/22	Jan 24,/23	Nov10/23	Odor	scalar	*Visual	NORML	NORML	NORML	NORML
	~	,	~	Emulsified Water	scalar	*Visual		NEG	NEG	NEG
C							>0.2			
				Free Water	scalar	*Visual		NEG	NEG	NEG
				FLUID PROPI			limit/base	current	history1	history2
				Visc @ 100°C	cSt	ASTM D445	15.4	14.1	14.3	14.4
	1			GRAPHS Ferrous Alloys						
				¹⁰ T	~					
8/21	5/22	+/23 -	-	iron						
Dec28/21	Mar15/22	Jan 24,/23		8 - nickel		-				
	_	-		6						
			80							
				4						
				2						
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					14-1					
				Jun 10/2 Aug 31/2	Dec28/21 Mar15/22	Jan 24/23	Nov10/23			
				Jur Aug	Mai Dei	Jan	Nov			
				Non-ferrous Meta	als					
				10 copper	1 I I I					
				8 - Beauting tin						
			5	6	\sim					
				2	1					
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				2 2	21	23	23			
				Jun10/21 Aug31/21	Dec28/21 Mar15/22	Jan 24/23	Nov10/23			
						- P	Nc			
				Viscosity @ 100°	С			Base Number		
				18 - Abnormal			10.	Base		
				17-	1 1	1	- 8.			
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				13 Abnormal			<u>2</u> .	D -		
				12-						
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					5 0					
					Jec28// lar15/2	an24	lov10	Jun1 iug3	Jec21	lan 24/
					Dec28/21 Mar15/22	Jan 24/23	Nov10/23	Jun10/21 Aug31/21	Dec28/21 Mar15/22	Jan24/23 Nov10/23
,		Laborator	v	Jun 10/21					-	
	AR	Laborator Sample N			501 Madi Receive	son Ave., Ca d : 13 l			-	5 - Michigan East 6200 Elmridge
	B	Sample N Lab Num	o. Der	: WearCheck USA - : GFL0101564 : 06005224	501 Madi Receive Diagnos	son Ave., Ca d : 13 sed : 13	ry, NC 27513 Nov 2023 Nov 2023		ironmental - 415	5 - Michigan East 6200 Elmridge ling Heights, MI
		Sample N Lab Numb Unique Nur	o. Der nber	: WearCheck USA - : GFL0101564 : 06005224 : 10738986	501 Madi Receive	son Ave., Ca d : 13 sed : 13	ry, NC 2751 Nov 2023		ironmental - 415 Sterl	5 - Michigan East 6200 Elmridge ling Heights, MI US 48313
Certificate	L2367	Sample N Lab Numb Unique Nur Test Pack	o. per nber age	: WearCheck USA - : GFL0101564 : 06005224 : 10738986 : FLEET	501 Madi Receive Diagnos Diagnos	son Ave., Ca d : 13 aed : 13 tician : We	ry, NC 27513 Nov 2023 Nov 2023 s Davis		ironmental - 415 Sterl Contac	5 - Michigan East 6200 Elmridge ling Heights, MI US 48313 ct: Frank Wolak
Certificate To discl	12367 uss this	Sample N Lab Numb Unique Num Test Pack sample rep	o. Der nber age Dort, c	: WearCheck USA - : GFL0101564 : 06005224 : 10738986	501 Madi Receive Diagnos Diagnos	son Ave., Ca d : 13 ed : 13 tician : We	ry, NC 27513 Nov 2023 Nov 2023 s Davis 9.		ironmental - 415 Sterl Contac fwola	5 - Michigan East 6200 Elmridge ling Heights, MI US 48313