

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id

227014-740

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.

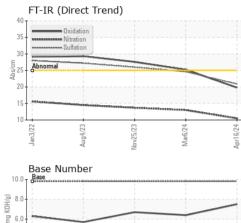
Fluid Condition

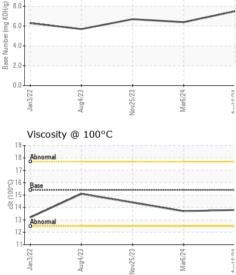
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0061030	GFL0061036	GFL0061043
Sample Date		Client Info		16 Apr 2024	06 Mar 2024	25 Nov 2023
Machine Age	hrs	Client Info		12993	12711	0
Oil Age	hrs	Client Info		697	610	615
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<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	>100	26	49	65
Chromium	ppm	ASTM D5185m	>20	2	1	1
Nickel	ppm	ASTM D5185m	>4	1	0	0
Titanium	ppm	ASTM D5185m		<1	0	0
Silver	ppm	ASTM D5185m	>3	<1	0	0
Aluminum	ppm	ASTM D5185m	>20	4	4	6
Lead	ppm	ASTM D5185m	>40	2	<1	3
Copper	ppm	ASTM D5185m	>330	2	1	1
Tin	ppm	ASTM D5185m	>15	1	0	0
Vanadium	ppm	ASTM D5185m		<1	0	0
Cadmium	ppm	ASTM D5185m		.4	0	0
oddiniani	ppm	AO INI DOTODITI		<1	0	0
ADDITIVES	ppin	method	limit/base	current	history1	history2
	ppm		limit/base			-
ADDITIVES		method ASTM D5185m		current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	current 5	history1 4	history2 5
ADDITIVES Boron Barium	ppm ppm	method ASTM D5185m ASTM D5185m	0 0 60	current 5 <1	history1 4 0	history2 5 0
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	current 5 <1 65 1 945	history1 4 0 65 <1 1015	history2 5 0 74 0 1167
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	current 5 <1 65 1 945 1115	history1 4 0 65 <1 1015 1161	history2 5 0 74 0
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150	current 5 <1 65 1 945	history1 4 0 65 <1 1015 1161 1073	history2 5 0 74 0 1167 1340 1271
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	current 5 <1 65 1 945 1115 959 1224	history1 4 0 65 <1 1015 1161	history2 5 0 74 0 1167 1340 1271 1634
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150	Current 5 <1 65 1 945 1115 959	history1 4 0 65 <1 1015 1161 1073	history2 5 0 74 0 1167 1340 1271
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 60 0 1010 1070 1150 1270	current 5 <1 65 1 945 1115 959 1224	history1 4 0 65 <1 1015 1161 1073 1268	history2 5 0 74 0 1167 1340 1271 1634
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	Current 5 <1 65 1 945 1115 959 1224 3007	history1 4 0 65 <1 1015 1161 1073 1268 3101	history2 5 0 74 0 1167 1340 1271 1634 3368
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	current 5 <1 65 1 945 1115 959 1224 3007 current 6 6 6 6	history1 4 0 65 <1 1015 1161 1073 1268 3101 history1 5 4	history2 5 0 74 0 1167 1340 1271 1634 3368 history2 6 8
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25	current 5 <1 65 1 945 1115 959 1224 3007 current 6	history1 4 0 65 <1 1015 1161 1073 1268 3101 history1 5	history2 5 0 74 0 1167 1340 1271 1634 3368 history2 6
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS	method ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25	current 5 <1 65 1 945 1115 959 1224 3007 current 6 6 6 6	history1 4 0 65 <1 1015 1161 1073 1268 3101 history1 5 4	history2 5 0 74 0 1167 1340 1271 1634 3368 history2 6 8
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS	method ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20	current 5 <1 65 1 945 1115 959 1224 3007 current 6 6 9	history1 4 0 65 <1 1015 1161 1073 1268 3101 history1 5 4 3 history1 0.8	history2 5 0 74 0 1167 1340 1271 1634 3368 history2 6 8 10 history2 0.9
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	method ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 Limit/base >20	current 5 <1 65 1 945 1115 959 1224 3007 current 6 9 current	history1 4 0 65 <1 1015 1161 1073 1268 3101 history1 5 4 3 history1	history2 5 0 74 0 1167 1340 1271 1634 3368 history2 6 8 10 history2
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	method ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 Limit/base >20	current 5 <1 65 1 945 1115 959 1224 3007 current 6 9 current 0.5	history1 4 0 65 <1 1015 1161 1073 1268 3101 history1 5 4 3 history1 0.8	history2 5 0 74 0 1167 1340 1271 1634 3368 history2 6 8 10 history2 0.9
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 t ppm ppm	method ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 220 220 220 20 20 20 20 20 20 20 20 20	current 5 <1 65 1 945 1115 959 1224 3007 current 6 9 current 0.5 10.5	history1 4 0 65 <1 1015 1161 1073 1268 3101 bistory1 5 4 3 history1 0.8 13.0	history2 5 0 74 0 1167 1340 1271 1634 3368 history2 6 8 10 history2 0.9 13.7
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 t ppm ppm	method ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 20 225 20 20 320 33 20 20 20	current 5 <1 65 1 945 1115 959 1224 3007 current 6 6 9 current 0.5 10.5 20.9	history1 4 0 65 <1 1015 1161 1073 1268 3101 bistory1 5 4 3 history1 0.8 13.0 24.6	history2 5 0 74 0 1167 1340 1271 1634 3368 history2 6 8 10 history2 0.9 13.7 26.0



OIL ANALYSIS REPORT





1)		VISUAL		method	limit/base	currer	nt	history1	histo	ory2
		White Metal	scalar	*Visual	NONE	NONE	I	NONE	NONE	Ξ
1		Yellow Metal	scalar	*Visual	NONE	NONE	1	NONE	NONE	-
the stand best of the stand of the		Precipitate	scalar	*Visual	NONE	NONE	1	NONE	NONE	=
		Silt	scalar	*Visual	NONE	NONE	1	NONE	NONE	-
		Debris	scalar	*Visual	NONE	NONE		NONE	NONE	
	and a definition of the local statements of the	Sand/Dirt	scalar	*Visual	NONE	NONE		NONE	NONE	
5/23 -	6/24	Appearance	scalar	*Visual	NORML	NORML		NORML	NORM	
Nov25/23	Mar6/24 Apr16/24	Odor	scalar	*Visual	NORML	NORML		NORML	NORM	
-		Emulsified Water	scalar	*Visual	>0.2	NEG		NEG	NEG	
	Free Water	scalar	*Visual		NEG		NEG	NEG		
		FLUID PROPE		method	limit/base	currer		history1	histo	orv2
		Visc @ 100°C	cSt	ASTM D445		13.8		13.7	14.4	,
		GRAPHS								
		Ferrous Alloys								
5/23 -	Mar6/24	60 - iron								
Nov25/23	Mart	50 -								
		₽ 8 30								
1		i i								
		20								
		10								
				54	54					
		Jan3/22 Aug4/23	Vov25/23	Mar6/24	Apr16/24					
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- 723 -	24	Non-ferrous Metal	.s							
Nov25/23	Mar6/24	copper								
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		6 -								
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		2 THE REPORT OF	and a state of the							
		2			CONTRACT.					
		North Constitution of Constitu			And an and and and a state					
			23	24	24					
	Jan3/22 Aug4/23	Nov25/23	Mar6/24	Apr16/24						
	Viscosity @ 100°C			~						
	¹⁹ T	,		10	Base Nur	nber				
	18 - Abnormal			10.	0			-		
	17				0					
		5 ¹⁶ Bare			KOH					
		G-0015 53 14			B 6.				1	
		⁴ 3 ₁₄			equin 4.	0			1	
		13 Abnormal			9. .9 Base Number (mg KOH/g) .4					
		12 - Abnormal			° 2.	0+				
		11			0.					
		Jan3/22 Aug4/23	Nov25/23	Mar6/24	Apr16/24	Jan 3/22	Aug4/23	Nov25/23	Mar6/24	
		Jai	Novi	Ma	Apr	Jai	Auf	Novi	Ma	
	Laboratory	: WearCheck USA - 501 Madison Ave., Cary, NC 27513 GFL ENVIRONMENTAL - 635 -								<u> </u>
			Received : 25 Apr 2024			UL.			1680 PEACH S	
	Sample No.	: GFL0061030	Recei	veu . 2.				WHITEHALL,		
		: GFL0061030 : <mark>06160213</mark>	Teste	d : 26	6 Apr 2024					_L, I
	Sample No.	: <mark>06160213</mark> : 10995636		d : 26		Ves Davis			VHITEHAL US 4	

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

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Submitted By: Derek Kater Page 2 of 2

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