

OIL ANALYSIS REPORT



Machine Id 410022

Component Diesel Engine

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

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

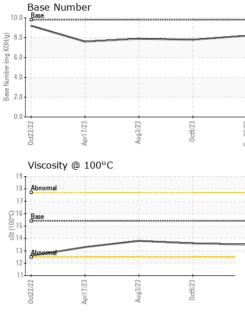
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFOR	MATION	method	limit/base	current	history1	history2	
Sample Number		Client Info		GFL0108402	GFL0084548	GFL0089497	
Sample Date		Client Info		30 Dec 2023	09 Oct 2023	03 Aug 2023	
Machine Age	hrs	Client Info		6496	6496	6014	
Oil Age	hrs	Client Info		7077	6496	0	
Oil Changed		Client Info		Changed	Changed	Changed	
Sample Status				NORMAL	NORMAL	NORMAL	
CONTAMINAT		mathad	limit/base			history2	
	IUN	method		current	history1		
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	9	12	27	
Chromium	ppm	ASTM D5185m	>20	<1	<1	2	
Nickel	ppm	ASTM D5185m	>4	0	0	0	
Titanium	ppm	ASTM D5185m		0	<1	0	
Silver	ppm	ASTM D5185m	>3	0	0	0	
Aluminum	ppm	ASTM D5185m	>20	1	3	4	
Lead	ppm		>40	<1	0	1	
Copper	ppm	ASTM D5185m	>330	<1	<1	<1	
Tin	ppm	ASTM D5185m	>15	<1	<1	<1	
Vanadium	ppm	ASTM D5185m		0	<1	<1	
Cadmium	0.00	ACTM DE10Em		^	0	0	
Gaumum	ppm	ASTM D5185m		0	0	0	
ADDITIVES	ррш	method	limit/base	current	0 history1	0 history2	
	ppm		limit/base				
ADDITIVES		method		current	history1	history2	
ADDITIVES Boron	ppm	method ASTM D5185m	0	current 1	history1 <1	history2 6	
ADDITIVES Boron Barium	ppm ppm	method ASTM D5185m ASTM D5185m	0	current 1 0	history1 <1 0	history2 6 0	
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	current 1 0 59	history1 <1 0 62	history2 6 0 67	
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	current 1 0 59 0	history1 <1 0 62 <1	history2 6 0 67 <1	
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	current 1 0 59 0 988	history1 <1 0 62 <1 961	history2 6 0 67 <1 1059	
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	Current 1 0 59 0 988 1065	history1 <1 0 62 <1 961 1055	history2 6 0 67 <1 1059 1179	
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	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 1 0 59 0 988 1065 1113	history1 <1 0 62 <1 961 1055 1031	history2 6 0 67 <1 1059 1179 1097	
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270	current 1 0 59 0 988 1065 1113 1257	history1 <1 0 62 <1 961 1055 1031 1201	history2 6 0 67 <1 1059 1179 1097 1322	
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 ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	Current 1 0 59 0 988 1065 1113 1257 3129	<1 0 62 <1 961 1055 1031 1201 2919	history2 6 0 67 <1 1059 1179 1097 1322 3673	
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 ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	Current 1 0 59 0 988 1065 1113 1257 3129 Current	<1 0 62 <1 961 1055 1031 1201 2919 history1	history2 6 0 67 <1 1059 1179 1097 1322 3673 history2	
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 limit/base	current 1 0 59 0 988 1065 1113 1257 3129 current 2	history1 <1 0 62 <1 961 1055 1031 1201 2919 history1 3	history2 6 0 67 <1 1059 1179 1097 1322 3673 history2 4	
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 limit/base	current 1 0 59 0 988 1065 1113 1257 3129 current 2 3	<1 0 62 <1 961 1055 1031 1201 2919 history1 3 5	history2 6 0 67 <1 1059 1179 1097 1322 3673 history2 4 5	
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25	current 1 0 59 0 988 1065 1113 1257 3129 current 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 current	<1 0 62 <1 961 1055 1031 1201 2919 history1 3 5 4	history2 6 0 67 <1 1059 1179 1097 1322 3673 history2 4 5 7	
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	current 1 0 59 0 988 1065 1113 1257 3129 current 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 0.3	<1 0 62 <1 961 1055 1031 1201 2919 history1 3 5 4 history1 0.2	history2 6 0 67 <1 1059 1179 1097 1322 3673 history2 4 5 7 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 limit/base >25 >20 limit/base	current 1 0 59 0 988 1065 1113 1257 3129 current 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 current	<1 0 62 <1 961 1055 1031 1201 2919 history1 3 5 4 history1	history2 6 0 67 <1 1059 1179 1097 1322 3673 history2 4 5 7 history2 0.4	
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 ppm	method ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >25 imit/base >3 >20	Current 1 0 59 0 988 1065 1113 1257 3129 current 2 3 2 0.3 8.4 19.3	<1 0 62 <1 961 1055 1031 1201 2919 history1 3 5 4 history1 0.2 7.9 19.2	history2 6 0 67 <1 1059 1179 1097 1322 3673 history2 4 5 7 history2 0.4 9.8 20.3	
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAM	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm	method ASTM D5185m ASTM D7185 method *ASTM D7624 *ASTM D7415 method	0 0 0 1010 1070 1150 1270 2060 2060 225 20 220 220 20 3 20 3 20 3 3 20 3 3 20 3 3 20 3 3 3 20 3 3 3 20 3 3 3 3	current 1 0 59 0 988 1065 1113 1257 3129 current 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 0.3 8.4 19.3 current	<1 0 62 <1 961 1055 1031 1201 2919 history1 3 5 4 history1 0.2 7.9 19.2 history1	history2 6 0 67 <1 1059 1179 1097 1322 3673 history2 4 5 7 history2 0.4 9.8 20.3 history2	
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 ppm	method ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >25 imit/base >3 >20	Current 1 0 59 0 988 1065 1113 1257 3129 current 2 3 2 0.3 8.4 19.3	<1 0 62 <1 961 1055 1031 1201 2919 history1 3 5 4 history1 0.2 7.9 19.2	history2 6 0 67 <1 1059 1179 1097 1322 3673 history2 4 5 7 history2 0.4 9.8 20.3	



OIL ANALYSIS REPORT

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		
/23	/23 -		scalar	*Visual	NORML	NORML	NORML	NORML		
Aug3/23	0ct9/23 Dec30/23	Odor	scalar	*Visual	NORML	NORML	NORML	NORML		
		Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG		
°C		Free Water	scalar	*Visual	20.2	NEG	NEG	NEG		
						NEG	NEG	NEG		
		FLUID PROPE	RTIES	method	limit/base	current	history1	history2		
		Visc @ 100°C	cSt	ASTM D445	15.4	13.5	13.6	13.8		
		GRAPHS								
		Ferrous Alloys								
23	- 23	iron								
Aug3/23	0ct9/23	50 - chromium								
		40								
		<u>ل</u> ر 30								
		20		1						
		10								
			52	20 20						
		0ct22/22 Apr17/23	Aug3/23	0ct9/23	Dec30/23					
				0	De					
		Non-ferrous Meta	ls							
		copper								
		8 - Internet lead								
		6-								
		E d d								
		4								
		2								
			~	CO.						
		0ct22/22 Apr17/23	Aug3/23	0ct9/23	Dec30/23					
				0	De					
		Viscosity @ 100°C	2			Base Number				
		18 - Abnormal			10.0	Base				
		17-		1	- 8.0					
					KOH/g					
		016 Base 015 314			(8)HOX 6.0- 6.0- 6.0- 6.0- 6.0- 6.0- 6.0- 6.0-					
		53 14			5 4.0-					
		13			ase N					
		12			° 2.0-					
		11			0.0					
		0ct22/22 Apr17/23	Aug3/23	0ct9/23	Dec30/23	0ct22/22 Apr17/23	Aug3/23	0ct9/23 Dec30/23		
		Apr	Au	0	Dec	Apr	Au	Dec.		
	Laboratory	· MoorChook USA	501 Madia	on Ava Ca	n/ NC 07510		ronmontal 01	8 - Hartland UC		
4	Laboratory Sample No.			01 Madison Ave., Cary, NC 27513 Recieved : 08 Jan 2024			GFL Environmental - 918 - Hartland HC 630 E Industrial Drive			
ANAB	Lab Number			Diagnosed : 09 Jan 2024 Diagnostician : Wes Davis			000 L	Hartland, WI		
TESTING LABORATORY	Unique Numbe	r : 10819566						US 53029		
Certificate L2367	rtificate L2367 Test Package : FLEET							t: David McCall		
	To discuss this sample report, contact Customer Service at 1-800-237-1369.david.mccall@gfle* - Denotes test methods that are outside of the ISO 17025 scope of accreditation.T: (262)36									
		are outside of the ISO 1 cifications are based on t				CGM 106.2012	1:	(262)369-3069 F:		
Statements Of C	comornity to spe	cincations are based on t	ne simple	acceptance	เธิดเรียงที่ เป็นเซิ (J	Gaivi 100.2012)		Г.		

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Submitted By: David McCall