

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id 722032

Component Diesel Engine

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

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor. Please specify the component make and model with your next sample.

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

Fluid Condition

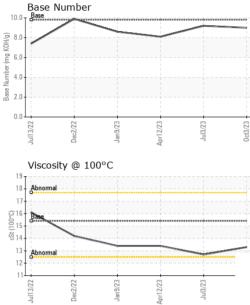
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

		Jul2022	Dec2022 Jan2023	Apr2023 Jul2023	0ct2023	
SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0091940	GFL0075058	GFL0075033
Sample Date		Client Info		03 Oct 2023	03 Jul 2023	12 Apr 2023
Machine Age	hrs	Client Info		40266	40132	39877
Oil Age	hrs	Client Info		134	600	139
Oil Changed		Client Info		N/A	Changed	Not Changd
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	5	17	5
Chromium	ppm	ASTM D5185m	>20	0	<1	<1
Nickel	ppm	ASTM D5185m	>4	<1	0	<1
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	<1	<1	<1
Lead	ppm	ASTM D5185m		0	<1	0
Copper	ppm	ASTM D5185m		0	3	<1
Tin	ppm	ASTM D5185m		0	<1	<1
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
Boron	0.0.00	ASTM D5185m	0	6	10	10
DOIDH	ppm	ASTIVI DOTODITI	0	0	10	13
	ppm mag				10	0
Barium	ppm	ASTM D5185m	0	0	0	0
Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m	0 60	0 63	0 65	0 62
Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0	0 63 <1	0 65 <1	0 62 <1
Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0 1010	0 63 <1 1019	0 65 <1 1001	0 62 <1 959
Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0 1010 1070	0 63 <1 1019 1093	0 65 <1 1001 1196	0 62 <1 959 1116
Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0 1010 1070 1150	0 63 <1 1019 1093 1178	0 65 <1 1001 1196 1103	0 62 <1 959 1116 1081
Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0 1010 1070	0 63 <1 1019 1093	0 65 <1 1001 1196	0 62 <1 959 1116
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0 1010 1070 1150 1270	0 63 <1 1019 1093 1178 1376	0 65 <1 1001 1196 1103 1350	0 62 <1 959 1116 1081 1282
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0 1010 1070 1150 1270 2060	0 63 <1 1019 1093 1178 1376 3455	0 65 <1 1001 1196 1103 1350 3953	0 62 <1 959 1116 1081 1282 3960
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0 1010 1070 1150 1270 2060	0 63 <1 1019 1093 1178 1376 3455 current	0 65 <1 1001 1196 1103 1350 3953 history1	0 62 <1 959 1116 1081 1282 3960 history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	0 60 0 1010 1070 1150 1270 2060 Limit/base >25	0 63 <1 1019 1093 1178 1376 3455 current 3	0 65 <1 1001 1196 1103 1350 3953 history1 3	0 62 <1 959 1116 1081 1282 3960 history2 <1
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	0 60 0 1010 1070 1150 1270 2060 Limit/base >25	0 63 <1 1019 1093 1178 1376 3455 current 3 1	0 65 <1 1001 1196 1103 1350 3953 history1 3 2	0 62 <1 959 1116 1081 1282 3960 history2 <1 1
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 60 0 1010 1070 1150 1270 2060 <i>limit/base</i> >25 >20	0 63 <1 1019 1093 1178 1376 3455 current 3 1 2	0 65 <1 1001 1196 1103 1350 3953 history1 3 2 2 2	0 62 <1 959 1116 1081 1282 3960 history2 <1 1 1
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 60 0 1010 1070 1150 1270 2060 <i>limit/base</i> >25 >20 <i>limit/base</i> >3	0 63 <1 1019 1093 1178 1376 3455 current 3 1 2 current	0 65 <1 1001 1196 1103 1350 3953 history1 3 2 2 2 history1	0 62 <1 959 1116 1081 1282 3960 history2 <1 1 1 1 history2
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	ASTM D5185m ASTM D5185m	0 60 1010 1070 1150 1270 2060 <i>limit/base</i> >25 >20 <i>limit/base</i> >3 >20	0 63 <1 1019 1093 1178 1376 3455 current 3 1 2 current 0.3	0 65 <1 1001 1196 1103 3953 history1 3 2 2 2 history1 0.5	0 62 <1 959 1116 1081 1282 3960 history2 <1 1 1 1 history2 0.2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	<pre>ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm</pre>	ASTM D5185m ASTM D5185m	0 60 1010 1070 1150 1270 2060 <i>limit/base</i> >25 >20 <i>limit/base</i> >3 >20	0 63 <1 1019 1093 1178 1376 3455 <u>current</u> 3 1 2 2 <u>current</u> 0.3 5.1	0 65 <1 1001 1196 1103 1350 3953 history1 3 2 2 2 history1 0.5 6.3	0 62 <1 959 1116 1081 1282 3960 history2 <1 1 1 1 history2 0.2 4.7
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	<pre>ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm</pre>	ASTM D5185m ASTM D5185m	0 60 1010 1070 1150 1270 2060 limit/base >25 -20 limit/base >3 >20 >30	0 63 <1 1019 1093 1178 1376 3455 <u>current</u> 3 1 2 <u>current</u> 0.3 5.1 18.0	0 65 <1 1001 1196 1103 1350 3953 history1 3 2 2 2 history1 0.5 6.3 19.2	0 62 <1 959 1116 1081 1282 3960 history2 <1 1 1 1 history2 0.2 4.7 16.0



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		
Jan 9/23 Apr1 2/23	Jul3/23 - 0ct3/23 -	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML	
Jan	nr 0c	Odor	scalar	*Visual	NORML	NORML	NORML	NORML	
°C		Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG	
		Free Water	scalar	*Visual		NEG	NEG	NEG	
		FLUID PROPI	ERTIES	method	limit/base	current	history1	history2	
		Visc @ 100°C	cSt	ASTM D445	15.4	13.3	12.7	13.4	
		GRAPHS							
		Ferrous Alloys							
	~~~~	40 35							
Jan 9/23 Apr1 2/23	Jul3/23	30		1					
, A		25							
		톨 20							
		15		$\wedge$					
		10	$\sim$						
		5-	$\sim$						
		22 ¹ 0	/23 -	/23	/23				
		Jul13/22 Dec2/22	Jan 9/23 Apr1 2/23	Jul3/23	0ct3/23				
		Non-ferrous Meta	als						
		10 copper							
		8 - copper							
		errererere (IU							
		6 - Ed							
		4							
				- ×					
		2							
			m m	THE REAL PROPERTY AND INCOMENTS	m m				
		Jul13/22 Dec2/22	Jan 9/23 Apr1 2/23	Jul3/23	0ct3/23				
		 Viscosity @ 100°	4		_				
		¹⁹ T			10.0	Base Number			
		18 - Abnormal	4						
		17			(B/H	/			
		0.0 Base			9.0- 2 6.0-				
		(3-001) ts ³ 14			(0) (0) (0) (0) (0) (0) (0) (0) (0) (0)				
					4.0 N as				
		13 Abnormal			2.0				
		11			0.0				
		Jul13/22 Dec2/22	Jan 9/23 Apr1 2/23	Jul3/23	0ct3/23	Jul13/22	Jan 9/23 Apr1 2/23	Jul3/23	
		De	Apri	٦٢	ŏ	Jul	Apr	Jr Oc	
	Laboratory	: WearCheck USA -	501 Madie	son Ave Ca	rv. NC 27513	GFI Envir	onmental - 683 - Ru	ckersville Hauling	
	Sample No.	: GFL0091940	Received	d : 05 (	Oct 2023	261 INDUSTRIAL DR			
	Lab Number	: 05970799	Diagnos		Oct 2023		R	uckersville, VA	
Costiliante 19907	Unique Number Test Package		Diagnost	t <b>ician</b> : We		Cont	US 22698 act: Jaf Finney		
Certificate L2367 To discuss this		contact Customer Ser	vice at 1-8	800-237-1369	Э.			ey@gflenv.com	
* - Denotes tes	st methods that a	are outside of the ISO	17025 sco	pe of accred	litation.			(434)990-4972	
Statements of c	conformity to spec	cifications are based on	the simple	acceptance of	decision rule (J	ICGM 106:2012)		F:	