

OIL ANALYSIS REPORT



Machine Id

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.

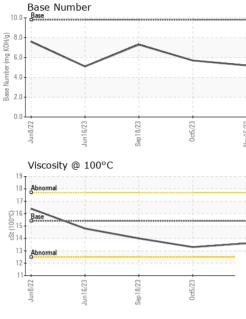
Fluid Condition

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

SAMPLE INFORI		mothed	limit/base	ourropt	history1	history
			limit/base	current	history1	history2
Sample Number		Client Info		GFL0059264	GFL0084930	GFL0085005
Sample Date		Client Info		15 Nov 2023	05 Oct 2023	18 Sep 2023
Machine Age	hrs	Client Info		5624	5418	5235
Oil Age	hrs	Client Info		5624	5418	506
Oil Changed		Client Info		N/A	N/A	N/A
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	63	19	50
Chromium	ppm	ASTM D5185m	>20	2	1	2
Nickel	ppm	ASTM D5185m	>2	5	<1	<1
Titanium	ppm	ASTM D5185m	>2	<1	0	0
Silver	ppm	ASTM D5185m	>2	0	<1	0
Aluminum	ppm	ASTM D5185m	>25	2	13	6
Lead	ppm	ASTM D5185m	>40	<1	0	<1
Copper	ppm	ASTM D5185m	>330	14	12	2
Tin	ppm	ASTM D5185m	>15	2	0	<1
Vanadium	ppm	ASTM D5185m		<1	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current <1	history1 0	history2 5
	ppm ppm					
Boron		ASTM D5185m	0	<1	0	5
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	<1 0	0 0	5 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	<1 0 59	0 0 57	5 0 67
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	<1 0 59 1	0 0 57 1	5 0 67 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	<1 0 59 1 869	0 0 57 1 905	5 0 67 <1 1096
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	<1 0 59 1 869 1025	0 0 57 1 905 991	5 0 67 <1 1096 1244
Boron 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 0 60 0 1010 1070 1150	<1 0 59 1 869 1025 897	0 0 57 1 905 991 983	5 0 67 <1 1096 1244 1171
Boron 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 ASTM D5185m	0 0 60 0 1010 1070 1150 1270	<1 0 59 1 869 1025 897 1198	0 0 57 1 905 991 983 1246	5 0 67 <1 1096 1244 1171 1469
Boron 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 ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	<1 0 59 1 869 1025 897 1198 1795	0 0 57 1 905 991 983 1246 2569	5 0 67 <1 1096 1244 1171 1469 3979
Boron 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 0 60 1010 1070 1150 1270 2060	<1 0 59 1 869 1025 897 1198 1795 current	0 0 57 1 905 991 983 1246 2569 history1	5 0 67 <1 1096 1244 1171 1469 3979 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method	0 0 60 0 1010 1070 1150 1270 2060 limit/base	<1 0 59 1 869 1025 897 1198 1795 current 7	0 0 57 1 905 991 983 1246 2569 history1 6	5 0 67 <1 1096 1244 1171 1469 3979 history2 13
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m 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 limit/base	<1 0 59 1 869 1025 897 1198 1795 current 7 7	0 0 57 1 905 991 983 1246 2569 history1 6 11	5 0 67 <1 1096 1244 1171 1469 3979 history2 13 3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20	<1 0 59 1 869 1025 897 1198 1795 current 7 7 3	0 0 57 1 905 991 983 1246 2569 history1 6 11 4	5 0 67 <1 1096 1244 1171 1469 3979 history2 13 3 1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25	<1 0 59 1 869 1025 897 1198 1795 current 7 7 3 3	0 0 57 1 905 991 983 1246 2569 history1 6 11 4 x	5 0 67 <1 1096 1244 1171 1469 3979 history2 13 3 1 history2
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	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >3	<1 0 59 1 869 1025 897 1198 1795 <u>current</u> 7 7 3 <u>current</u> 1.3	0 0 57 1 905 991 983 1246 2569 history1 6 11 4 4 history1 0.5	5 0 67 <1 1096 1244 1171 1469 3979 history2 13 3 1 history2 0.3
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 t ppm ppm	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	<1 0 59 1 869 1025 897 1198 1795 current 7 7 7 3 current 1.3 10.9	0 0 57 1 905 991 983 1246 2569 history1 6 11 4 history1 0.5 9.0	5 0 67 <1 1096 1244 1171 1469 3979 history2 13 3 1 1 history2 0.3 11.3
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 TS ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7844 *ASTM D7844	0 0 0 1010 1070 1150 1270 2060 2060 225 20 220 220 20 3 20 20 20 20 20 20 20 20 20 20 20 20 20	<1 0 59 1 869 1025 897 1198 1795 Current 7 7 7 3 Current 1.3 10.9 23.5	0 0 57 1 905 991 983 1246 2569 history1 6 11 4 4 history1 0.5 9.0 20.9 history1	5 0 67 <1 1096 1244 1171 1469 3979 history2 13 3 1 history2 0.3 11.3 20.7 history2
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	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 20 225 20 20 320 33 20 20 20	<1 0 59 1 869 1025 897 1198 1795 <u>current</u> 7 7 3 <u>current</u> 1.3 10.9 23.5	0 0 57 1 905 991 983 1246 2569 history1 6 11 4 0.5 9.0 20.9	5 0 67 <1 1096 1244 1171 1469 3979 history2 13 3 1 history2 0.3 11.3 20.7



OIL ANALYSIS REPORT



VISUAL		method	limit/base	current	history1	history2
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
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG
FLUID PROPE	RTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	13.6	13.3	14.0
GRAPHS						
Ferrous Alloys						
iron		1				
nickel						
		1				
J		/				
) +		\sim				
	~					
	ap18/23					
Jun 8/22	Sep18/23	0ct5/23	Nov15/23			
Response for the second						
22/gunr Non-ferrous Metal						
ZZ@unn Non-ferrous Metal						
Non-ferrous Metal						
Record of the second se						
Non-ferrous Metal						
Non-ferrous Metal						
Non-ferrous Metal						
Non-ferrous Metal	ls	Def5/23	Nov15/23-			
Non-ferrous Metal	ls		Nov15/23-			
Non-ferrous Metal	ls	Def5/23				
Non-ferrous Metal	ls	Def5/23	Nov15/23-	Base Number		
Non-ferrous Metal	ls	Def5/23	Nov15/23		-	
Non-ferrous Metal	ls	Def5/23	Nov15/23			
Non-ferrous Metal	ls	Def5/23	Nov15/23			
Non-ferrous Metal	ls	Def5/23	Nov15/23			
Non-ferrous Metal	ls	Def5/23	Nov15/23			

0.0

Jun8/22

Jun16/23

Nov15/23 -

: 17 Nov 2023

: 20 Nov 2023



 View
 Unique Number
 : 10749694
 Diagnostician
 : Sean Felton

 Certificate L2367
 Test Package
 : FLEET

 To discuss this sample report, contact Customer Service at 1-800-237-1369.
 * - Denotes test methods that are outside of the ISO 17025 scope of accreditation.

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

Jun16/23

Sep18/23 -

: WearCheck USA - 501 Madison Ave., Cary, NC 27513

Received

Diagnosed

0ct5/23 -

12

Laboratory Sample No.

Lab Number

Jun8/22

: GFL0059264

: 06010550

Sep18/23 -

0ct5/23 -

Nov15/23

GFL Environmental - 410 - Michigan West 39000 Van Born Rd Wayne, MI US 48184 Contact: Belal Dgheish bdgheish@gflenv.com T: (734)714-2340 06:2012) F: