

OIL ANALYSIS REPORT

Sample Rating Trend





Area {UNASSIGNED} Machine Id 933045 Component

Diesel Engine

PETRO CANADA DURON SHP 15W40 (8 GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Fluid

Wear

Metal levels are typical for a new component breaking in.

Contamination

There is no indication of any contamination in the oil.

Fluid Condition

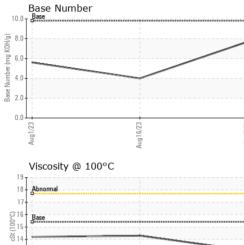
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0088754	GFL0088739	GFL0088787
Sample Date		Client Info		05 Sep 2023	16 Aug 2023	01 Aug 2023
Machine Age	hrs	Client Info		690	517	347
Oil Age	hrs	Client Info		690	517	347
Oil Changed		Client Info		Changed	Not Changd	Not Changd
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	20.0	NEG	NEG	NEG
WEAR METAL	0	method	limit/base	ourropt	history1	history2
				current		
Iron	ppm	ASTM D5185m	>90	11	60	56
Chromium	ppm	ASTM D5185m		0	1	<1
Nickel	ppm	ASTM D5185m	>2	0	2	1
Titanium	ppm	ASTM D5185m		0	<1	<1
Silver	ppm	ASTM D5185m	>2	0	0	<1
Aluminum	ppm	ASTM D5185m		5	18	16
Lead	ppm	ASTM D5185m	>40	<1	2	<1
Copper	ppm	ASTM D5185m	>330	2	17	17
Tin	ppm	ASTM D5185m	>15	<1	1	<1
Vanadium	ppm	ASTM D5185m		<1	<1	<1
Cadmium	ppm	ASTM D5185m		0	<1	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm		limit/base 0	current 18	history1 14	19
	ppm ppm		0	18 0		
Boron		ASTM D5185m	0	18 0 58	14 0 51	19 3 50
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0 0 60	18 0	14 0	19 3
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	18 0 58	14 0 51	19 3 50
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	18 0 58 3	14 0 51 15	19 3 50 14
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	18 0 58 3 849	14 0 51 15 787	19 3 50 14 770
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	18 0 58 3 849 1119	14 0 51 15 787 1153	19 3 50 14 770 1101
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	18 0 58 3 849 1119 903	14 0 51 15 787 1153 655	19 3 50 14 770 1101 695
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	18 0 58 3 849 1119 903 1136	14 0 51 15 787 1153 655 916	19 3 50 14 770 1101 695 906
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	18 0 58 3 849 1119 903 1136 3393	14 0 51 15 787 1153 655 916 2609	19 3 50 14 770 1101 695 906 2641
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 ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	18 0 58 3 849 1119 903 1136 3393 current	14 0 51 15 787 1153 655 916 2609 history1	19 3 50 14 770 1101 695 906 2641 history2
Boron 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 ASTM D5185m method	0 0 60 1010 1070 1150 1270 2060	18 0 58 3 849 1119 903 1136 3393 current 8	14 0 51 15 787 1153 655 916 2609 history1 35	19 3 50 14 770 1101 695 906 2641 history2 35
Boron 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 ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 kimit/base >25	18 0 58 3 849 1119 903 1136 3393 current 8 1	14 0 51 15 787 1153 655 916 2609 history1 35 6	19 3 50 14 770 1101 695 906 2641 history2 35 7
Boron 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 0 0 1010 1070 1150 1270 2060 limit/base >25	18 0 58 3 849 1119 903 1136 3393 current 8 1 1	14 0 51 15 787 1153 655 916 2609 history1 35 6 70	19 3 50 14 770 1101 695 906 2641 history2 35 7 56
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 Limit/base >20	18 0 58 3 849 1119 903 1136 3393 current 8 1 1 14 current	14 0 51 15 787 1153 655 916 2609 history1 35 6 70 history1	19 3 50 14 770 1101 695 906 2641 history2 35 7 56 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 TS	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 Limit/base >20	18 0 58 3 849 1119 903 1136 3393 current 8 1 1 14 current 0	14 0 51 15 787 1153 655 916 2609 history1 35 6 70 history1 0	19 3 50 14 770 1101 695 906 2641 history2 35 7 56 history2 0.1
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 ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <i>limit/base</i> >25 >20 <i>limit/base</i> >20	18 0 58 3 849 1119 903 1136 3393 current 8 1 14 14 0 0 5.6	14 0 51 15 787 1153 655 916 2609 history1 35 6 70 history1 0 11.0	19 3 50 14 770 1101 695 906 2641 history2 35 7 56 history2 0.1 10.7
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 imit/base >25 imit/base >6 >20	18 0 58 3 849 1119 903 1136 3393 current 8 1 14 14 current 0 5.6 16.4	14 0 51 15 787 1153 655 916 2609 history1 35 6 70 history1 0 11.0 21.6	19 3 50 14 770 1101 695 906 2641 history2 35 7 56 history2 0.1 10.7 20.2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAE	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415	0 0 0 1010 1070 1150 1270 2060 2060 225 20 220 20 20 20 20 20 30 20 20 20 20 20 20 20 20 20 20 20 20 20	18 0 58 3 849 1119 903 1136 3393 current 8 1 14 current 0 5.6 16.4 current	14 0 51 15 787 1153 655 916 2609 history1 35 6 70 history1 0 11.0 21.6 history1	19 3 50 14 770 1101 695 906 2641 history2 35 7 56 history2 0.1 10.7 20.2 history2



13 Abnorma 12 11 Aug1/23

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
Aug 16/23 Sep5/23	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Aug	Ouor	scalar	*Visual	NORML	NORML	NORML	NORML
	Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
	Free Water	scalar	*Visual		NEG	NEG	NEG
	FLUID PROPE	ERTIES	method	limit/base	current	history1	history2
	Visc @ 100°C	cSt	ASTM D445	15.4	13.1	14.3	14.2
	GRAPHS						
	Ferrous Alloys						
23	60						
Aug 16/23	50 - nickel		\ \				
4	40-						
	Ē 30-		\sim				
	20						
	10						
	10						
	23	23		23			
	Aug 1/23	Aug16/23		Sep5/23			
	Non-ferrous Meta						
	¹⁸ T						
	16- copper						
	14 tin		\				
			\backslash				
	E ¹⁰						
	6						
	4						
		and the set of the set		And the second sec			
	Aug1/23	6/23 -		Sep 5/23 -			
	Aug	Aug16/23		Sep			
	Viscosity @ 100°	С			Base Number		
	19 T			10.0	Base		
	18 - Abnormal						
	17-			0.8 0.0 Base Number (mg KOH/g)	1		/
	Contraction 16 Base			E 6.0			
	E 15			- 10 - 10 - 10			
	13			Se Nu	I		
	Abnormal	1		2.0			
	11						
	Aug1/23	6/23 -		Sep 5/23	Aug1/23 -	6/23 -	
	Aug	Aug16/23		Sep	Aug	Aug16/23 -	
Laboratory	: WearCheck USA -				GFL ENV		
Sample No.	: GFL0088754	Received	: 14 \$	Sep 2023	GFL ENV	1280 Rum	Creek Parkw
Sample No. Lab Number	: GFL0088754 : 05951019	Received Diagnose	l :14 \$ ed :16 \$		GFL ENV	1280 Rum	
Sample No.	: GFL0088754 : 05951019 r : 10646978 e : FLEET	Received Diagnose Diagnosti	ed : 14 \$ ed : 16 \$ ician : We	Sep 2023 Sep 2023 s Davis	GFL ENV	1280 Rum S Contact: JO	Creek Parkwa Stockbridge, G

Submitted By: JOSHUA TINKER