

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id 827069

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

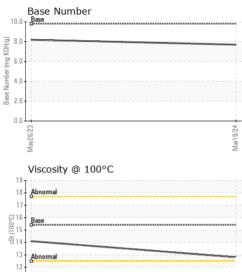
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

·			May2023	Mar2024		
SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0084796	GFL0084844	
Sample Date		Client Info		19 Mar 2024	26 May 2023	
Machine Age	hrs	Client Info		20421	18948	
Oil Age	hrs	Client Info		18948	150	
Oil Changed		Client Info		Changed	N/A	
Sample Status				NORMAL	NORMAL	
-			11 11 11		-	
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	
Water		WC Method	>0.2	NEG	NEG	
Glycol		WC Method		NEG	NEG	
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	16	15	
Chromium	ppm	ASTM D5185m	>20	<1	<1	
Nickel	ppm	ASTM D5185m	>4	<1	<1	
Titanium	ppm	ASTM D5185m		<1	0	
Silver	ppm	ASTM D5185m	>3	0	0	
Aluminum	ppm	ASTM D5185m	>20	2	2	
Lead	ppm	ASTM D5185m	>40	_ <1	<1	
Copper		ASTM D5185m	>330	1	2	
Tin	ppm	ASTM D5185m	>15	، <1	0	
Vanadium	ppm	ASTM D5185m	>15	0	0	
Cadmium	ppm	ASTM D5185m			0	
	ppm	ASTIM D3103III		0	0	
ADDITIVES	ppm	method	limit/base	current	history1	history2
	ppm		limit/base			
ADDITIVES		method ASTM D5185m		current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	0	current 2	history1 11	history2
ADDITIVES Boron Barium	ppm ppm	method ASTM D5185m ASTM D5185m	0 0 60	current 2 0	history1 11 0	history2
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	current 2 0 57	history1 11 0 57	history2
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	current 2 0 57 <1	history1 11 0 57 <1	history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	current 2 0 57 <1 904	history1 11 0 57 <1 954	history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	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	current 2 0 57 <1 904 1039 1046	history1 11 0 57 <1 954 1190	history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	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 2 0 57 <1 904 1039	history1 11 0 57 <1 954 1190 1060	history2
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 2 0 57 <1 904 1039 1046 1203	history1 11 0 57 <1 954 1190 1060 1265	history2
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 2 0 57 <1 904 1039 1046 1203 2941 current	history1 11 0 57 <1 954 1190 1060 1265 3276 history1	history2
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 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 2 0 57 <1 904 1039 1046 1203 2941 current 8	history1 11 0 57 <1 954 1190 1060 1265 3276 history1 6	history2 history2
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 0 1010 1070 1150 1270 2060 limit/base >25	current 2 0 57 <1 904 1039 1046 1203 2941 current	history1 11 0 57 <1 954 1190 1060 1265 3276 history1	history2 history2
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 60 0 1010 1070 1150 1270 2060 imit/base >25 >20	current 2 0 57 <1 904 1039 1046 1203 2941 current 8 4 2	history1 11 0 57 <1 954 1190 1060 1265 3276 history1 6 2 1	history2 history2
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 >20 20	current 2 0 57 <1 904 1039 1046 1203 2941 current 8 4 2 current	history1 11 0 57 <1 954 1190 1060 1265 3276 history1 6 2 1 +history1 history1	history2 history2 history2 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 2 0 57 <1 904 1039 1046 1203 2941 current 8 4 2 current 0.3	history1 11 0 57 <1 954 1190 1060 1265 3276 history1 6 2 1 history1 0 0.4	history2 history2 history2 history2 history2
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 ppm	method ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >25 >20 imit/base >3 >20	current 2 0 57 <1 904 1039 1046 1203 2941 current 8 4 2 current 0.3 10.7	history1 11 0 57 <1 954 1190 1060 1265 3276 history1 6 2 1 history1 0 0.4 8.5	history2 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 2 0 57 <1 904 1039 1046 1203 2941 current 8 4 2 current 0.3	history1 11 0 57 <1 954 1190 1060 1265 3276 history1 6 2 1 history1 0 0.4	history2 history2 history2 history2 history2
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 t t t	method ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >25 >20 imit/base >3 >20	current 2 0 57 <1 904 1039 1046 1203 2941 current 8 4 2 current 0.3 10.7	history1 11 0 57 <1 954 1190 1060 1265 3276 history1 6 2 1 history1 0 0.4 8.5	history2 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 t t t t	method ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 20 225 20 imit/base >3 >20 >30	current 2 0 57 <1 904 1039 1046 1203 2941 current 8 4 2 current 0.3 10.7 19.7	history1 11 0 57 <1 954 1190 1060 1265 3276 history1 6 2 1 history1 0.4 8.5 20.0	history2 history2 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 D7844 *ASTM D7624 *ASTM D7415 method	0 0 0 1010 1070 1150 2260 225 220 220 imit/base >3 >20 >30 imit/base	current 2 0 57 <1 904 1039 1046 1203 2941 current 8 4 2 current 0.3 10.7 19.7 current	history1 11 0 57 <1 954 1190 1060 1265 3276 history1 6 2 1 history1 0.4 8.5 20.0 history1	history2 history2 history2 history2 history2 history2 history2



11 May26/23

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	VISUAL		method	limit/base	current	history1	history2
	White Metal	scalar	*Visual	NONE	NONE	NONE	
	Yellow Metal	scalar	*Visual	NONE	NONE	NONE	
	Precipitate	scalar	*Visual	NONE	NONE	NONE	
	Silt	scalar	*Visual	NONE	NONE	NONE	
	Debris	scalar	*Visual	NONE	NONE	NONE	
	Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	
Marl 9/24	Appearance	scalar	*Visual	NORML	NORML	NORML	
Ma	Odor	scalar	*Visual	NORML	NORML	NORML	
	Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	
	Free Water	scalar	*Visual		NEG	NEG	
	FLUID PROPE	RTIES	method	limit/base	current	history1	history2
	Visc @ 100°C	cSt	ASTM D445	15.4	12.8	14.1	
	GRAPHS						
	Ferrous Alloys						
	¹⁶						
A CL D	14- iron chromium						
	12 nickel						
	10- E o						
	Md 8-						
	b						
	2						
	8/23			9/24			
	May26/23			Mar1 9/24			
	∼ Non-ferrous Meta	ls					
	¹⁰ T						
	copper						
	8						
	8 - ensemble lead						
	6						
	6						
	6						
	6						
				124			
				Mart 19.24			
	B B C C C C C C C C C C C C C C C C C C			Mar19/24			
				Mar19/2/2	Base Number		
	Viscosity @ 100°C						
	Viscosity @ 100°C			10.0	Base		
	Viscosity @ 100°C			10.0	_ Base		
	Viscosity @ 100°C			10.0	_ Base		
	Viscosity @ 100°C			10.0	Base		
	Viscosity @ 100°C			10.0 (6)(HO) 8.0 (0)(HO) 80 (0)(HO) 80 (0)(H	Base		
	Viscosity @ 100°C			10.0	Base		
	Viscosity @ 100°C			10.0 (0)HOX Bun Jaquing 4.0 880 2.0 0.0	Base		
	Viscosity @ 100°C			10.0 (0)HOX Bun Jaquing 4.0 880 2.0 0.0	Base		
	Viscosity @ 100°C			10.0 (0)HOX B0U bul) Particular (0)HOX B0U (0)HOX B0U (Base		
	Viscosity @ 100°C			0.0 8.0 0.0 0.0 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	Base E2U92/lew		
Laboratory	Viscosity @ 100°C	11 Madisc		10.0 (0)HOX B0() 100 (0)HOX B0() (0)HOX B0() (Base E2U92/lew	vironmental - 95	9A - Urbana H
Sample No.	Viscosity @ 100°C		ived : 21	0.0 8.0 0.0 0.0 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	Base E2U92/lew	vironmental - 95	9A - Urbana H cunningham F
Sample No.	Viscosity @ 100°C Viscosity @ 100°C	11 Madiso Recei Teste	ived : 21 ed : 22	10.0 (0,0)(0) 8.0 (0)(0) 900(0) 8.0 (0)(0) 900(0) (0)(0)(0)(0)(0)(0)(0)(0)(0)(0)(0)(0)(0)(GFL En	vironmental - 95	19 A - Urbana H cunningham F Urbana, US 6180
Sample No. Lab Number Unique Number Test Package	Viscosity @ 100°C Viscosity @ 100°C Viscosity @ 100°C	1 Madiso Rece Teste Diagr	ived : 21 ed : 22 nosed : 22	10.0 (0)H00 Bull Jaquing View 2.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4	GFL En	vironmental - 95 4808 c Contact	9 A - Urbana H cunningham F Urbana, US 6180 :: Kristine Tryc
Sample No. Lab Number Unique Number	Viscosity @ 100°C Viscosity @ 100°C Viscosity @ 100°C	11 Madisc Rece Teste Diagr	ived : 21 ed : 22 nosed : 22 800-237-1369	10.0 (0)HOX Buy Jaquing See 2.0 (0)HOX Buy Jaquing See 2.0 (0.0 (0) (0)HOX Buy Jaquing See 2.0 (0.0 (0) (0)HOX Buy Jaquing See 2.0 (0.0 (0)HOX See 2.0 (0)HOX SEE 2.0 (GFL En	vironmental - 95 4808 c Contact	19A - Urbana H cunningham F Urbana, US 6180

Submitted By: Also GFL959E - Kristine Tryon