

OIL ANALYSIS REPORT

Sample Rating Trend







Machine Id 826049

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

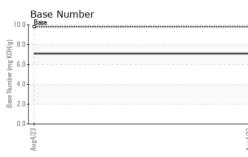
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

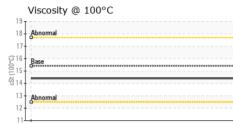
SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0084839		
Sample Date		Client Info		04 Aug 2023		
Machine Age	hrs	Client Info		12494		
Oil Age	hrs	Client Info		0		
Oil Changed		Client Info		Changed		
Sample Status				NORMAL		
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>2.0	<1.0		
Glycol		WC Method		NEG		
, 	0		11 1. 11			
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	34		
Chromium	ppm	ASTM D5185m	>20	2		
Nickel	ppm	ASTM D5185m	>4	<1		
Titanium	ppm	ASTM D5185m		0		
Silver	ppm	ASTM D5185m	>3	0		
Aluminum	ppm	ASTM D5185m	>20	6		
Lead	ppm	ASTM D5185m	>40	0		
Copper	ppm	ASTM D5185m	>330	<1		
Tin	ppm	ASTM D5185m	>15	<1		
Vanadium	ppm	ASTM D5185m		0		
Cadmium	ppm	ASTM D5185m		0		
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 11	history1	history2
	ppm ppm					
Boron		ASTM D5185m	0	11		
Boron Barium Molybdenum	ppm	ASTM D5185m ASTM D5185m	0	11 0		
Boron Barium	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	11 0 56		
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	11 0 56 <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	11 0 56 <1 1033		
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	11 0 56 <1 1033 1273	 	
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	11 0 56 <1 1033 1273 1098	 	
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	11 0 56 <1 1033 1273 1098 1358	 	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	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 0 1010 1070 1150 1270 2060	11 0 56 <1 1033 1273 1098 1358 3940		
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	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	0 0 60 0 1010 1070 1150 1270 2060	11 0 56 <1 1033 1273 1098 1358 3940 current		
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 ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base	11 0 56 <1 1033 1273 1098 1358 3940 current 6	 history1 	 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm 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	0 0 0 1010 1070 1150 1270 2060 limit/base	11 0 56 <1 1033 1273 1098 1358 3940 current 6 2	 history1 	 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20	11 0 56 <1 1033 1273 1098 1358 3940 current 6 2 3	 history1 	 history2
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 >20 limit/base >20	11 0 56 <1 1033 1273 1098 1358 3940 <u>current</u> 6 2 3 3 <u>current</u> 0.5	 history1 history1	 history2 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	11 0 56 <1 1033 1273 1098 1358 3940 current 6 2 3 3	 history1 history1	 history2 history2 history2
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> >3 >20	11 0 56 <1 1033 1273 1098 1358 3940 current 6 2 3 3 current 0.5 10.5	 history1 history1 	 history2 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 D7844 *ASTM D7844 *ASTM D7844	0 0 0 1010 1070 1150 1270 2060 2060 225 20 225 20 220 20 3 20 20 20 3 3 20 20 20 20 20 20 20 20 20 20 20 20 20	11 0 56 <1 1033 1273 1098 1358 3940 current 6 2 3 current 0.5 10.5 21.0 current	 history1 history1 history1	 history2 history2 history2 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 <u>imit/base</u> >3 20 20	11 0 56 <1 1033 1273 1098 1358 3940 <u>current</u> 6 2 3 3 <u>current</u> 0.5 10.5 21.0	 history1 history1 history1	 history2 history2 history2



Aug4/23

OIL ANALYSIS REPORT





	VISUAL		method	limit/base	current	history1	history2	
	White Metal	scalar	*Visual	NONE	NONE			
	Yellow Metal	scalar	*Visual	NONE	NONE			
	Precipitate	scalar	*Visual	NONE	NONE			
	Silt	scalar	*Visual	NONE	NONE			
	Debris	scalar	*Visual	NONE	NONE			
	Sand/Dirt	scalar	*Visual	NONE	NONE			
Aug4/23 -	Appearance	scalar	*Visual	NORML	NORML			
Aug	Odor	scalar	*Visual	NORML	NORML			
	Emulsified Water	scalar	*Visual	>0.2	NEG			
°C	Free Water	scalar	*Visual		NEG			
	FLUID PROPE		method	limit/base	current	history1	history2	
	Visc @ 100°C	cSt	ASTM D445		14.4			
	GRAPHS							
	Ferrous Alloys							
	iron							
	25							
	20							
	15							
	10							
	5							
	Aug4/23			Aug4/23				
				4				
	Non-ferrous Metal	S						
	copper							
	8 - in tin							
	6-							
	E d							
	4							
	2+							
	0		***************************************					
	Aug4/23			Aug4/23				
				4				
	Viscosity @ 100°C				Base Number			
	18 - Abnormal			10.0	Base	*****	······································	
	17				-			
Ŧ				0.0 Base Number (mg KOH/g)				
	Base 3 14			E 6.0				
ç	3 ₁₄			4.0				
	13 Abnormal			ase				
	12			°° 2.0				
	11			0.0	L			
	Aug4/23			Aug4/23	Aug4/23		Aug4/23	
	AL			Aı	Aı		Au	
Laboratory	: WearCheck USA - 5	01 Madis	on Ave., Ca	ry, NC 27513	GFL Envi	ronmental - 959	A - Urbana HC	
ANAR Sample No.	: GFL0084839	Received	: 22 \$	Sep 2023		4808 ci	unningham Rd	
Lab Number		Diagnose		Sep 2023			Urbana, IL	
Unique Number		Diagnosti	ician : Wes	s Davis		Contact	US 61802 Kristing Tryon	
Certificate L2367 Test Package To discuss this sample report, c	: FLEET contact Customer Servi	ce at 1-R	00-237-1360).			Kristine Tryon n@gflenv.com	
* - Denotes test methods that a						i tu yu	T:	
Statements of conformity to speci					JCGM 106:2012)		F:	



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