

# **OIL ANALYSIS REPORT**

#### Sample Rating Trend



# Machine Id 427218

#### 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

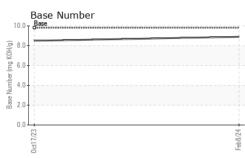
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

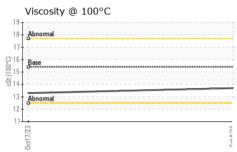
				Feb2024		
SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0093112	GFL0093012	
Sample Date		Client Info		08 Feb 2024	17 Oct 2023	
Machine Age	mls	Client Info		351062	340959	
Oil Age	mls	Client Info		0	0	
Oil Changed		Client Info		Changed	Changed	
Sample Status				NORMAL	NORMAL	
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		ASTM D5185m	>100		4	
-	ppm			6		
Chromium	ppm	ASTM D5185m	>20	<1	0	
Nickel	ppm	ASTM D5185m	>4	<1	0	
Titanium	ppm	ASTM D5185m	0	0	0	
Silver	ppm	ASTM D5185m	>3	0	0	
Aluminum	ppm	ASTM D5185m	>20	3		
Lead	ppm	ASTM D5185m	>40	<1	<1	
Copper	ppm	ASTM D5185m	>330	1	1	
Tin	ppm	ASTM D5185m	>15	<1	0	
Vanadium	ppm	ASTM D5185m		0	0	
Cadmium	ppm	ASTM D5185m		0	0	
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	7	15	
Barium	ppm	ASTM D5185m	0	0	0	
		AOTH DELOF	~~		~ =	
Molybdenum	ppm	ASTM D5185m	60	57	65	
Molybdenum Manganese	ppm ppm	ASTM D5185m ASTM D5185m	0	57 <1	65 <1	
•						
Manganese	ppm	ASTM D5185m	0	<1	<1	
Manganese Magnesium	ppm ppm	ASTM D5185m ASTM D5185m	0 1010	<1 898	<1 920	
Manganese Magnesium Calcium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 1010 1070	<1 898 1021	<1 920 1139	
Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 1010 1070 1150	<1 898 1021 977	<1 920 1139 996	
Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 1010 1070 1150 1270	<1 898 1021 977 1228	<1 920 1139 996 1202	
Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 1010 1070 1150 1270 2060	<1 898 1021 977 1228 2999	<1 920 1139 996 1202 3043	
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 1010 1070 1150 1270 2060 limit/base	<1 898 1021 977 1228 2999 current	<1 920 1139 996 1202 3043 history1	   history2
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b> ASTM D5185m	0 1010 1070 1150 1270 2060 limit/base	<1 898 1021 977 1228 2999 current 4	<1 920 1139 996 1202 3043 history1 5	   history2
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 1010 1070 1150 1270 2060 limit/base >25	<1 898 1021 977 1228 2999 current 4 4	<1 920 1139 996 1202 3043 history1 5 1	   history2 
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 1010 1070 1150 1270 2060 <i>limit/base</i> >25 >20	<1 898 1021 977 1228 2999 current 4 4 2	<1 920 1139 996 1202 3043 history1 5 1 <1	   history2  
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 1010 1070 1150 1270 2060 <i>limit/base</i> >25 >20	<1 898 1021 977 1228 2999 current 4 4 2 2 current	<1 920 1139 996 1202 3043 history1 5 1 <li>1 </li> <li>history1 </li>	  history2   history2
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >3	<1 898 1021 977 1228 2999 current 4 4 2 2 current 0.2	<1 920 1139 996 1202 3043 history1 5 1 <1 <1 history1 0.2	  history2   history2
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 1010 1070 1150 1270 2060 <i>limit/base</i> >25 20 <i>limit/base</i> >3 >20	<1 898 1021 977 1228 2999 current 4 4 2 current 0.2 7.1	<1 920 1139 996 1202 3043 history1 5 1	   history2   history2  history2
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D7844 *ASTM D7844 *ASTM D7624	0 1010 1070 1150 1270 2060 imit/base >25 >20 imit/base >3 >20 >30	<1 898 1021 977 1228 2999 current 4 4 2 current 0.2 7.1 17.8	<1 920 1139 996 1202 3043 history1 5 1 <1 <1 history1 0.2 7.4 17.8	   history2   history2  history2 
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAM	ppm 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 ASTM D7844 *ASTM D7624 *ASTM D7415	0 1010 1070 1150 1270 2060 imit/base >25 	<1 898 1021 977 1228 2999 current 4 4 2 current 0.2 7.1 17.8 current	<1 920 1139 996 1202 3043 history1 5 1  5 1 <pre> 6 0.2 7.4 17.8 history1 </pre>	   history2  history2  history2    history2



# **OIL ANALYSIS REPORT**

VISUAL





	VISUAL		metho		usc c	unoni	Thotory	matory
	White Metal	scalar	*Visual	NONE	NO	NE	NONE	
	Yellow Metal	scalar	*Visual	NONE	NO	NE	NONE	
	Precipitate	scalar	*Visual	NONE	NO		NONE	
	Silt	scalar	*Visual	NONE	NO		NONE	
	Debris	scalar	*Visual	NONE	NO		NONE	
	Sand/Dirt	scalar	*Visual	NONE	NO	NE	NONE	
	Appearance	scalar	*Visual	NORM		RML	NORML	
	Odor	scalar	*Visual	NORM		RML	NORML	
	Emulsified Water	scalar	*Visual	>0.2	- NO		NEG	
	Free Water	scalar	*Visual	20.L	NE		NEG	
	FLUID PROPI		metho	d limit/b		urrent	history1	history
	Visc @ 100°C	cSt		45 15.4	ase c 13.		13.3	
	GRAPHS	COL	ASTIVI D	145 15.4	13.	ı	15.5	
	Ferrous Alloys							
	<sup>10</sup>							
	iron							
	8 - nickel							
	6			1				
	E dd							
	4							
	2							
	2							
	0							
	0ct17/23			Feb 8/24				
	Oct			æ				
	Non-ferrous Meta	als						
	<sup>10</sup> I							
	8 - copper							
	o T							
	6-							
	Md d							
	4							
	2-							
		***************************************						
	0ct17/23			Feb 8/24				
	Oct			굔				
	Viscosity @ 100°	С			Raco	Number		
	<sup>19</sup>				10.0 Base	manibel		
	18 Abnormal							
	17				( <sup>®</sup> <sup>8.0</sup>			
	çi <sup>16</sup> Base				Base Number (mg KOH(g))			
	(0,001) <sup>16</sup> Base 15				er a			
					4.0			
	13 - Abnormal				ase			
	12				<sup>2.0</sup>			
	11				0.0			
				1/24 -				
	0ct17/23			Feb8/24	0ct17/23			
	0				0			
	: WearCheck USA - 5	01 Madiso	n Ave., C	ary, NC 275	513	GFL Envi	ronmental - 413	- Whiteland Ha
	: GFL0093112	Recei		: 16 Feb 202				EMERSON
	. GFL0093112							
	: 06091506	Teste	d	: 17 Feb 202	24			WHITELAND
er er	: <mark>06091506</mark> : 10884359	Teste Diagr		: 17 Feb 202 : 17 Feb 202				US 46
er er er	: 06091506	Diagr	losed	: 17 Feb 202				WHITELAND US 46 yan Trent-Pro- octor@gflenv.c



\* - 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)

Certificate L2367

Contact/Location: Christyan Trent-Proctor - GFL413

T:

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