

# **OIL ANALYSIS REPORT**

Sample Rating Trend





Machine Id **4656M** Component **Diesel Engine** Fluid

PETRO CANADA DURON SHP 15W40 (--- GAL)

# Feb202 May2021 Dec202 May2022 Aug2022 Oct2022 Jac2023 Sep2023



SAMPLE INFOR		method	limit/base	current	history1	history2
			IIIIII/Dase			
Sample Number		Client Info		GFL0046376	GFL0071175	GFL0057058
Sample Date		Client Info		19 Sep 2023	11 Jan 2023	20 Oct 2022
Machine Age	hrs	Client Info		15410	14044	13446
Oil Age	hrs	Client Info		600	600	600
Oil Changed		Client Info		Not Changd	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINA	TION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
Glycol		WC Method		NEG	NEG	NEG
WEAR META	LS	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>90	18	3	7
Chromium	ppm	ASTM D5185m	>20	0	<1	<1
Nickel	ppm	ASTM D5185m	>2	0	0	0
Titanium	ppm	ASTM D5185m	>2	0	0	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>20	1	2	2
Lead	ppm	ASTM D5185m	>40	0	0	0
Copper	ppm	ASTM D5185m	>330	1	<1	<1
Tin	ppm	ASTM D5185m		0	0	<1
Vanadium	ppm	ASTM D5185m		0	0	<1
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	2	0	5
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m	60	57	53	56
Manganese	ppm	ASTM D5185m		0	<1	<1
Magnesium	ppm	ASTM D5185m	1010	926	834	891
Calcium	ppm	ASTM D5185m	1070	1141	929	1091
Phosphorus	ppm	ASTM D5185m	1150	998	882	1010
Zinc	ppm	ASTM D5185m		1250	1048	1210
Sulfur	ppm	ASTM D5185m	2060	3565	3143	3318
CONTAMINA	NTS	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>25	5	6	3
Sodium	ppm	ASTM D5185m		2	0	2
Potassium	ppm	ASTM D5185m	>20	1	0	6
INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>6	1.2	0.3	0.2
Nitration	Abs/cm	*ASTM D7624	>20	9.0	7.9	6.8
Out the them	Abe/ dates		. 20	01 5	10.4	10.4

21.5

17.4

9.7

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.

Sulfation

Oxidation

Abs/.1mm \*ASTM D7415 >30

Abs/.1mm \*ASTM D7414 >25

FLUID DEGRADATION method

Base Number (BN) mg KOH/g ASTM D2896 9.8

19.4

15.0

9.9

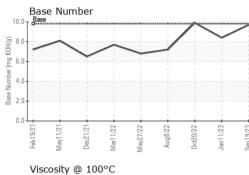
18.4

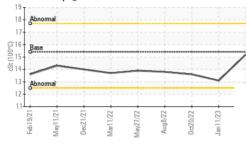
14.7

8.4



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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		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	15.2	13.1	13.6
GRAPHS Ferrous Alloys						
0T		1 1 1				
5 - iron	/	1				
0 - nickel	/					
5		<b>1</b>	1			
			1			
0						
5						
0						
0	27/22	20/22	19/23			
Feb 19/21	May27/22	Augo/22 Oct20/22 Jan11/23	Sep 19/23			
Feb19/21 Feb19/21 May11/21 Dec21/21 Mar11/22		Oct20/22	Sep 19/23			
Feb19/21 May11/21		0ct20/22	Sep19/23			
Maril122		Augorzz oct20/22 Jan11/23	Sep19/23			
Non-ferrous Meta Mar11/21		Augold 4	Sep19/23			
Maril122		0cf20/22 Jan 11/23	Sep19/23			
Maril122		0d20/22 Jan11/23	Sep 19/23			
Non-ferrous Meta Bead and May11/21 Bec21/21 Augusta		0et20/22	Sep19/23			
Maril122		Oct20/22	Sep19/23			
127111/2000 1271111/2000 1271111/2000 1271111/2000 1271111/2000 1271111/2000 12711111111111111111111111111111111111	ils					
IZ711/Inew IZ711/Inew Non-ferrous Meta	ils					
Feb.19.21 Control Feb.19.21 Control Feb.19.21   May11/21 May11/21 May11/21 May11/21 May11/21	IIS		Sep19/23			
Viscosity @ 100°0	IIS		Sep19/23	Base Number		
Viscosity @ 100°C	IIS					
Non-ferrous Meta Bada Viscosity @ 100° Abnormal	IIS		E2/61/4%S	Base		
Non-ferrous Meta Bada UIZILIZI Viscosity @ 100°0 Abnormal	IIS		E2/61/4%S	Base		
Non-ferrous Meta Bada UIZILIZI Viscosity @ 100°0 Abnormal	IIS		E2/61/4%S	Base		
Non-ferrous Meta Bada UIZILIZI Viscosity @ 100°0 Abnormal	IIS		E2/61/4%S	Base		
Non-ferrous Meta Decosity @ 100°0 Wall1122 Wall1122 Wall1122 Wall1122 Wall1122 Wall1122	IIS		E2/61/4%S	Base		
Non-ferrous Meta binomal Viscosity @ 100°0 Wall1122 Wall1122 Base Abnormal	IIS		0.0 per (und K0H/b)	Base		
IZILITEM IZI	IIS		10.0 (0)HOX Bul Jan 6.0 (0)HOX B	Base		
Non-ferrous Meta IZIIIIZI Viscosity @ 100°0 Abnomal	c		10.0 Sep 10.2 6.0 Mulha Kulh(0) 4.0	Base	Mar11/22 May27/22 Mag222	0et20/22

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 GFL Environmental - 465 - Pontiac Laboratory Sample No. : GFL0046376 Received : 22 Sep 2023 888 Baldwin Lab Number : 05958330 Diagnosed : 22 Sep 2023 Pontiac, MI Unique Number : 10659543 Diagnostician : Wes Davis US 48340 Test Package : FLEET Contact: Ricky Matthews Certificate L2367 To discuss this sample report, contact Customer Service at 1-800-237-1369. rickymathews@gflenv.com \* - Denotes test methods that are outside of the ISO 17025 scope of accreditation. T: (586)825-9514 F:

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