

OIL ANALYSIS REPORT

Sample Rating Trend





Machine Id 812098

Fluid

Component **Diesel Engine**

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

				12		1.1	
DIAGNOSIS	SAMPLE INFOR	MATION		limit/base		history1	history2
Recommendation	Sample Number		Client Info		GFL0097350	GFL0089545	GFL0067941
Resample at the next service interval to monitor.	Sample Date		Client Info		04 Dec 2023	19 Sep 2023	05 Jun 2023
Wear	Machine Age	hrs	Client Info		3894	3894	3894
All component wear rates are normal.	Oil Age	hrs	Client Info		3317	3317	3317
Contamination	Oil Changed		Client Info		N/A	N/A	N/A
There is no indication of any contamination in the	Sample Status				NORMAL	NORMAL	NORMAL
bil.	CONTAMINAT	ION	method	limit/base	current	history1	history2
Fluid Condition	Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
alkalinity remaining in the oil. The condition of the	Water		WC Method	>0.2	NEG	NEG	NEG
il is suitable for further service.	Glycol		WC Method		NEG	NEG	NEG
	WEAR METAL	S	method	limit/base	current	history1	history2
	Iron	ppm	ASTM D5185m	>120	5	6	5
	Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
	Nickel	ppm	ASTM D5185m	>5	<1	0	0
	Titanium	ppm	ASTM D5185m	>2	<1	0	<1
	Silver	ppm	ASTM D5185m		0	<1	0
	Aluminum	ppm	ASTM D5185m	>20	1	0	<1
	Lead	ppm	ASTM D5185m	>40	<1	0	0
	Copper	ppm	ASTM D5185m	>330	1	4	3
	Tin	ppm	ASTM D5185m	>15	<1	<1	<1
	Vanadium	ppm	ASTM D5185m		0	0	0
	Cadmium	ppm	ASTM D5185m		<1	0	0
	ADDITIVES		method	limit/base	current	history1	history2
	Boron	ppm	ASTM D5185m	0	11	5	7
	Barium	ppm	ASTM D5185m	0	11	0	0
	Molybdenum	ppm	ASTM D5185m	60	72	60	61
	Manganese	ppm	ASTM D5185m	0	<1	<1	<1
	Magnesium	ppm	ASTM D5185m	1010	1067	1012	970
	Calcium	ppm	ASTM D5185m	1070	1303	1109	1119
	Phosphorus	ppm	ASTM D5185m		1101	1000	007
		ppin	ASTIVI DOTODITI	1150	1161	1038	997
	Zinc	ppm	ASTM D5185m	1150 1270	1161	1313	997 1256
	Zinc Sulfur			1270			
		ppm ppm	ASTM D5185m	1270	1417	1313	1256
	Sulfur	ppm ppm	ASTM D5185m ASTM D5185m	1270 2060 limit/base	1417 4337	1313 3569	1256 3616
	Sulfur CONTAMINAN	ppm ppm	ASTM D5185m ASTM D5185m method	1270 2060 limit/base	1417 4337 current	1313 3569 history1	1256 3616 history2
	Sulfur CONTAMINAN Silicon	ppm ppm JTS ppm	ASTM D5185m ASTM D5185m method ASTM D5185m	1270 2060 limit/base >25	1417 4337 current 4	1313 3569 history1 3	1256 3616 history2 3
	Sulfur CONTAMINAN Silicon Sodium	ppm ppm JTS ppm ppm	ASTM D5185m ASTM D5185m method ASTM D5185m ASTM D5185m	1270 2060 limit/base >25	1417 4337 current 4 2	1313 3569 history1 3 2	1256 3616 history2 3 1
	Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm JTS ppm ppm	ASTM D5185m ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m	1270 2060 limit/base >25 >20 limit/base	1417 4337 current 4 2 2	1313 3569 history1 3 2 <1	1256 3616 history2 3 1 0
	Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm JTS ppm ppm ppm	ASTM D5185m ASTM D5185m Method ASTM D5185m ASTM D5185m ASTM D5185m Method	1270 2060 limit/base >25 >20 limit/base >4	1417 4337 current 4 2 2 2 current	1313 3569 history1 3 2 <1 kistory1	1256 3616 history2 3 1 0 history2
	Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ITS ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method *ASTM D7844	1270 2060 imit/base >25 >20 imit/base >4 >20	1417 4337 current 4 2 2 current 0.2	1313 3569 history1 3 2 <1 kistory1 0.4	1256 3616 history2 3 1 0 history2 0.3
	Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm JTS ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m *ASTM D7844 *ASTM D7624 *ASTM D7415	1270 2060 imit/base >25 >20 imit/base >4 >20	1417 4337 current 4 2 2 current 0.2 5.8	1313 3569 history1 3 2 <1 history1 0.4 7.1	1256 3616 history2 3 1 0 history2 0.3 6.3
	Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm JTS ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m *ASTM D7844 *ASTM D7624 *ASTM D7415	1270 2060 imit/base >25 >20 imit/base >4 >20 >30 imit/base	1417 4337 current 4 2 2 current 0.2 5.8 18.0	1313 3569 history1 3 2 <1 history1 0.4 7.1 19.0	1256 3616 history2 3 1 0 history2 0.3 6.3 19.1



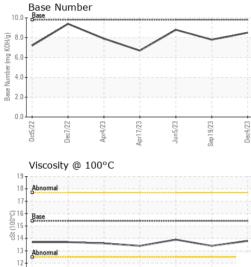
0ct5/22

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Dec7/22

pr4/73

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
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	RTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	13.8	13.4	13.9
GRAPHS						

Ferrous Alloys 25 Sep19/23 Apr17/23 20 15 ppm 10 Π. Apr4/23 Dec7/22 Apr17/23 Dec4/23 0ct5/22 Sep 19/23 Non-ferrous Metals 20 15 톱 10 C Dec4/23 Apr4/23 Apr17/23 Sep 19/23 Viscosity @ 100°C Base Number 19 10.0 Base 18 17 8 (mg KOH/g) ()-16 ()-00 () 15 () 14 6 | Number (4 (Base 13 Abnorma 12 11-0.0 Dec7/22. Apr4/23 -Jun5/23 -Dec4/23 . 0ct5/22 -Dec7/22 -Dec4/23. 0ct5/22 Apr4/23 Apr17/23 Jun5/23 Apr17/23 Sep19/23 Sep19/23 GFL Environmental - 654S - Midlothian Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 Sample No. : GFL0097350 Received : 12 Dec 2023 12230 Deergrove Road Lab Number : 06032699 Diagnosed : 13 Dec 2023 Midlothian, VA Unique Number : 10782490 Diagnostician : Wes Davis US 23112 Test Package : FLEET Contact: Corbin Umphlet Certificate L2367 To discuss this sample report, contact Customer Service at 1-800-237-1369. cumphlet@gflenv.com * - Denotes test methods that are outside of the ISO 17025 scope of accreditation. Т:

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

Submitted By: Matt oversee 654, 654S, 659 - Matthew Shinault

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