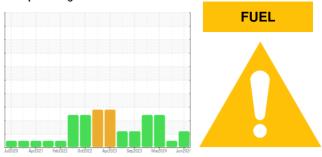


OIL ANALYSIS REPORT

Sample Rating Trend



426013 Component Diesel Engine Fluid

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

	SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
	Sample Number		Client Info		GFL0113195	GFL0113216	GFL0102901
from the	Sample Date		Client Info		24 Jun 2024	30 Apr 2024	18 Mar 2024
en done. We	Machine Age	hrs	Client Info		15968	17089	0
onitor this	Oil Age	hrs	Client Info		0	0	18310
	Oil Changed		Client Info		N/A	N/A	N/A
	Sample Status				ABNORMAL	NORMAL	SEVERE
	CONTAMINATI		method	limit/base	current	history1	history2
resent in the							
el in the oil.	Water		WC Method	>0.2	NEG	NEG	NEG
	Glycol		WC Method		NEG	NEG	NEG
ng the	WEAR METALS	5	method	limit/base	current	history1	history2
eable due to the	Iron	ppm	ASTM D5185(m)	>120	6	3	4
	Chromium	ppm	ASTM D5185(m)	>20	0	0	0
	Nickel	ppm	ASTM D5185(m)	>5	0	0	<1
	Titanium	ppm	ASTM D5185(m)	>2	0	0	0
	Silver	ppm	ASTM D5185(m)	>2	0	0	0
	Aluminum	ppm	ASTM D5185(m)	>20	2	1	3
	Lead	ppm	ASTM D5185(m)	>40	0	0	<1
	Copper	ppm	ASTM D5185(m)	>330	1	<1	1
	Tin	ppm	ASTM D5185(m)		0	0	<1
	Antimony	ppm	ASTM D5185(m)		<1	0	0
	Vanadium	ppm	ASTM D5185(m)		0	0	0
	Beryllium	ppm	ASTM D5185(m)		0	0	0
	Cadmium	ppm	ASTM D5185(m)		0	0	0
	ADDITIVES	le le	method	limit/base	current	history1	history2
	Boron	ppm	ASTM D5185(m)		34	116	113
	Barium	ppm	ASTM D5185(m)	0	0	0	0
	Molybdenum	ppm	ASTM D5185(m)	60	35	2	4
	Manganese	ppm ppm	ASTM D5185(m)	0	<1	0	0
	Manganese Magnesium		ASTM D5185(m) ASTM D5185(m)		<1 412	0 35	0 54
	Manganese Magnesium Calcium	ppm	ASTM D5185(m)	0 1010 1070	<1 412 1569	0 35 2116	0 54 2066
	Manganese Magnesium	ppm ppm	ASTM D5185(m) ASTM D5185(m)	0 1010	<1 412	0 35	0 54
	Manganese Magnesium Calcium	ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 1010 1070	<1 412 1569	0 35 2116	0 54 2066 911 1052
	Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 1010 1070 1150	<1 412 1569 698	0 35 2116 936	0 54 2066 911
	Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 1010 1070 1150 1270	<1 412 1569 698 822	0 35 2116 936 1103	0 54 2066 911 1052
	Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 1010 1070 1150 1270	<1 412 1569 698 822 1988	0 35 2116 936 1103 2806	0 54 2066 911 1052 2881
	Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 1010 1070 1150 1270 2060 limit/base	<1 412 1569 698 822 1988 <1	0 35 2116 936 1103 2806 <1	0 54 2066 911 1052 2881 <1
	Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 1010 1070 1150 1270 2060 limit/base	<1 412 1569 698 822 1988 <1 current	0 35 2116 936 1103 2806 <1 history1	0 54 2066 911 1052 2881 <1 history2
	Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 1010 1070 1150 1270 2060 limit/base	<1 412 1569 698 822 1988 <1 current 5	0 35 2116 936 1103 2806 <1 history1 1	0 54 2066 911 1052 2881 <1 history2 3
	Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm TS ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 1010 1070 1150 1270 2060 limit/base >25	<1 412 1569 698 822 1988 <1 current 5 3	0 35 2116 936 1103 2806 <1 history1 1 3	0 54 2066 911 1052 2881 <1 ×1 history2 3 3 3
	Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 1010 1070 1150 1270 2060 Iimit/base >25	<1 412 1569 698 822 1988 <1 current 5 3 2	0 35 2116 936 1103 2806 <1 	0 54 2066 911 1052 2881 <1 *1 history2 3 3 3 5
	Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium Potassium Fuel	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 1010 1070 1150 1270 2060 Imit/base >25 >20 >20 >3.0	<1 412 1569 698 822 1988 <1 0 current 5 3 2 4.5 current	0 35 2116 936 1103 2806 <1 history1 1 3 5 2.1	0 54 2066 911 1052 2881 <1 history2 3 3 3 3 5 5
	Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm %	ASTM D5185(m) ASTM D5185(m)	0 1010 1070 1150 2060 J limit/base >25 >20 >3.0 Limit/base >4	<1 412 1569 698 822 1988 <1 Current 5 3 2 4.5	0 35 2116 936 1103 2806 <1 history1 1 3 5 2.1 history1	0 54 2066 911 1052 2881 <1 * * * * * * * * * * * * * * * * * *

DIAGNOSIS

Recommendation

We recommend that you drain the oil from the component if this has not already been done. We recommend an early resample to monitor this condition.

Machine Id

Wear

All component wear rates are normal.

Contamination

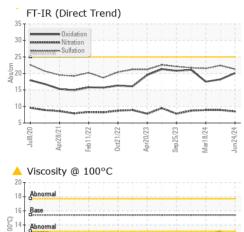
There is a moderate amount of fuel present in the oil. Tests confirm the presence of fuel in the oil.

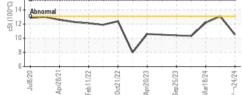
Fluid Condition

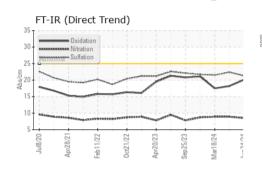
Fuel is present in the oil and is lowering the viscosity. The oil is no longer serviceable due to the presence of contaminants.



OIL ANALYSIS REPORT







FLU	JID DI	EGR/		<u>FION</u>	metho	d	limit/base	(curren	it	his	tory1		histor	ry2
Oxida	tion		Abs	s/.1mm	ASTM D74	414*	>25	20	.1		18.2		1	17.5	
VIS	UAL				metho	d	limit/base	(curren	it	his	tory1		histor	y2
White	Metal		SC	alar	Visual*		NONE	NC	ONE		NON	IE	-		
Yellow	v Metal		SC	alar	Visual*		NONE	NC	ONE		NON	IE	-		
Precip	oitate		SC	alar	Visual*		NONE		DNE		NON	IE	-		
Silt				alar	Visual*		NONE		ONE		NON		-		
Debris	-			alar	Visual*		NONE		ITE		NON				
Sand/				alar	Visual*		NONE		DNE		NON				
Appea Odor	arance			alar	Visual*		NORML				NOF				
	sified W	lator		alar alar	Visual* Visual*		NORML >0.2	NE			NEG			NORM	L
Free V		aler		alar	Visual*		>0.2	NE	-		NEG			NEG	
															•
	JID P				metho		limit/base		curren	It		tory1		histor	'y2
	0 100° م 100°		cS	st	ASTM D727	'9(m)	15.4	1 0	.5		13.1		1	12.2	
	APHS							Lea	d (ppr	n)					
Severe								⁰⁰ T		,, ,,					
0-								30 - Sever	8						
Abnor	rmal		Ì				L.	60 - Abno	rmal						
0-							1	20-							
	21.	22	727	23	23	24	24		21-	22	22	23	23	24	V
Jul8/20	Apr28/21	Feb 11/22	0ct21/22	Apr20/23	Sep 25/23	Mar18/24	Jun24/24	Jul8/20	Apr28/21	Feb 11/22	0ct21/22	Apr20/23	Sep 25/23	Mar18/24	20/20ml
Alun	ninum	_		4	~	2	-	Chr		n (ppi		4	\$	2	_
Severe								⁵⁰ T 6			1 I I I				
0								Ť							
0 Abnor	rmal						mdd	Abno	rmal						
0								10-							
04 20	121	22 -	22	23	23	24 -	24	20 0	/21.	22	22	23	23	24	74
Jul8/20	Apr28/21	Feb11/22	0ct21/22	Apr20/23	Sep 25/23	Mar18/24	Jun24/24	Jul8/20	Apr28/21	Feb11/22	0ct21/22	Apr20/23	Sep25/23	Mar18/24	20/20 mil
	per (pj	om)							on (pj	pm)				_	
C Severe	e imal							Sever	8						
0-								50 -							
0							Mdd	Abno	rmal						
0-						1		20			L				_
Jul8/20	Apr28/21.	1/22	1/22	0/23	5/23 .	8/24 -	4/24	Jul8/20	8/21-	1/22	1/22 -	0/23 -	5/23 -	8/24	VCI
Jul	Apr2	Feb11/22	0ct21/22	Apr20/23	Sep 25/23	Mar18/24	Jun24/24	Jul	Apr28/21	Feb11/22	0ct21/22	Apr20/23	Sep25/23	Mar18/24	AC/AC.mil
	osity @	0 100	°C					A Fue	Dilut	ion					
	rmal				<u>.</u>	-	20								
Abnor							15				1				
Abnor						-	10 % Pint	Sever			1				
Abnor			7	-			and an one and an								
Abnor Base 5 - Abnor			7	/			5	Abno	imal	~/	_	-		~	~
Abnor		Feb11/22	0ct21/22	Apr20/23	Sep25/23	Mar18/24		.0 26000	Apr28/21	Feb11/22	0ct21/22	Apr20/23	Sep25/23	Mar18/24	4/24



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 CALA : GFL0113195 Received : 27 Jun 2024 Sample No. Lab Number : 02644326 Tested : 28 Jun 2024 ISO 17025:2017 Accredited Laboratory Unique Number : 5801865 Diagnosed : 28 Jun 2024 - Kevin Marson Test Package : MOB 1 (Additional Tests: FuelDilution, PercentFuel, Visual) To discuss this sample report, contact Customer Service at 1-800-268-2131. Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab. Validity of results and interpretation are based on the sample and information as supplied.

GFL Environmental - 246 - Windsor 2700 Deziel Dr Windsor, ON CA N8W 5H8 Contact: Dave Varga dvarga@gflenv.com T: (519)944-8009 F: Submitted By: Dave Varga

Report Id: GFL246 [WCAMIS] 02644326 (Generated: 06/28/2024 09:36:29) Rev: 1

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