

# **OIL ANALYSIS REPORT**

**Sample Rating Trend** 



NORMAL



Machine Id
4431
Component
Diesel Engine
Fluid

PETRO CANADA DURON SHP 15W40 (40 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

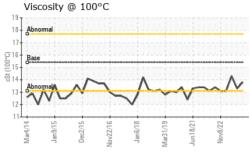
## **Fluid Condition**

The condition of the oil is acceptable for the time in service.

x2014 Jan2015 Dec2015 New2016 Jan2018 Mar2019 Jan2021 New2022											
SAMPLE INFOR	RMATION	method	limit/base	current	history1	history2					
Sample Number		Client Info		GFL0061109	GFL0074303	GFL0074261					
Sample Date		Client Info		03 Oct 2023	04 Jul 2023	17 Apr 2023					
Machine Age	hrs	Client Info		27600	0	26612					
Oil Age	hrs	Client Info		407	0	563					
Oil Changed		Client Info		Changed	N/A	Changed					
Sample Status				NORMAL	NORMAL	NORMAL					
CONTAMINAT	ΓΙΟΝ	method	limit/base	current	history1	history2					
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0					
Glycol		WC Method		NEG	NEG	NEG					
WEAR METAL	_S	method	limit/base	current	history1	history2					
Iron	ppm	ASTM D5185(m)	>120	5	8	2					
Chromium	ppm	ASTM D5185(m)	>20	0	<1	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	<1	0	0					
Aluminum	ppm	ASTM D5185(m)	>20	<1	2	<1					
Lead	ppm	ASTM D5185(m)	>40	0	0	0					
Copper	ppm	ASTM D5185(m)	>330	<1	<1	0					
Tin	ppm	ASTM D5185(m)	>15	0	<1	0					
Antimony	ppm	ASTM D5185(m)		0	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		method	limit/base	current	history1	history2					
Boron	ppm	ASTM D5185(m)	0	4	3	6					
Barium	ppm	ASTM D5185(m)	0	<1	0	0					
Molybdenum	ppm	ASTM D5185(m)	60	57	58	59					
Manganese	ppm	ASTM D5185(m)	0	0	<1	<1					
Magnesium	ppm	ASTM D5185(m)	1010	919	943	962					
Calcium	ppm	ASTM D5185(m)	1070	1030	1007	1077					
Phosphorus	ppm	ASTM D5185(m)	1150	979	1030	1101					
Zinc	ppm	ASTM D5185(m)	1270	1161	1158	1184					
Sulfur	ppm	ASTM D5185(m)	2060	2511	2511	2705					
Lithium	ppm	ASTM D5185(m)		<1	<1	<1					
CONTAMINA	NTS	method	limit/base	current	history1	history2					
Silicon	ppm	ASTM D5185(m)	>25	2	2	3					
Sodium	ppm	ASTM D5185(m)		3	2	2					
Potassium	ppm	ASTM D5185(m)	>20	0	<1	0					
INFRA-RED		method	limit/base	current	history1	history2					
Soot %	%	ASTM D7844*	>4	0.5	0.7	0					
Nitration	Abs/cm	ASTM D7624*	>20	7.7	9.2	5.3					
Sulfation	Abs/.1mm	ASTM D7415*	>30	18.6	19.5	17.6					
FLUID DEGRA	DATION	method	limit/base	current	history1	history2					
Oxidation	Abs/.1mm	ASTM D7414*	>25	14.1	14.9	13.1					



# **OIL ANALYSIS REPORT**



VISUAL		method	limit/base	current	history1	history2
Emulsified Water	scalar	Visual*	>0.2	NEG	NEG	NEG
Free Water	scalar	Visual*		NEG	NEG	NEG
FLUID PROPE	RTIFS	method	limit/base	current	history1	history2
						motory =
Visc @ 100°C	cSt	ASTM D7279(m)	15.4	13.8	13.3	14.3

GRAPH Iron (pp								_ead (	ppm)					
							90 T	Severe						
Severe							70							
							60 - = 50 -							
Abnormal				H			E 40	Abnormal						
							30 - 20 -							
					1		10-							
Mar4/14	Dec2/15	91/2	Jan6/18	119	8/21	3/22	0 —	Marty/14	Dec2/15	91/2	Jan6/18	- 61/	8/21	
Mar4/14 Jan9/15	Dec	Nov22/16	Jane	Mar31/19	Jun18/21	Nov8/22	;	Mar4/14	Dec	Nov22/16	Jan	Mar31/19	Jun18/21	
Aluminu	m (pp	m)					45 -	Chrom	ium (p	pm)				
Severe							40 -	Severe						
							35 -							
							E 25 -	Abnormal						
Abnormal							15							11
							10 - 5 -							
2	<u> </u>	-		~	4	2	0		LD	9	00	6		
Mar4/14 Jan9/15	Dec2/15	Nov22/16	Jan6/18	Mar31/19	Jun18/21	Nov8/22	2	Mar4/14	Dec2/15	Nov22/16	Jan6/18	Mar31/19	Jun18/21	
Copper (				2					(ppm)			2	,	
Severe							0.0	Severe						
Abnormal							60							
							50-							
							摄 40 - 30 -	Abnormal						
							20	0					٨	
	11:11		$\Lambda$	11-11		11 1111	10				~^	_~		
Mar4/14 Jan9/15	Dec2/15	Nov22/16	Jan6/18	Mar31/19	Jun18/21	Nov8/22	2	Mar4/14	Dec2/15	Nov22/16	Jan6/18	Mar31/19	Jun18/21	
			- P	Mai	Jul	ž				Nov	J.	Mai	Juc	
Viscosity	@ 10	Jusc	100,000				7.0 <sub>T</sub>	Soot 9	'0 		nnepe:			
Abnormal							6.0	Severe	111111					
Race							5.0	Abnormal						
Base	*********	*********					≥ 4.0 - 50 3.0 -							
	-		A			۸.								
Abnorma	N	7	/\	-	4	VIV	2.0							



**CALA** ISO 17025:2017 Accredited Laboratory

Laboratory Sample No. Lab Number Unique Number : 5656073

: GFL0061109 : 02587007

: WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 Received Diagnosed

: 05 Oct 2023 : 05 Oct 2023 Diagnostician : Wes Davis

Test Package : MOB 1

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 - 216

15 Bermondsey Road, Building B Toronto, ON CA M4B 1Y9

Contact: Tom Hatzioannidis thatzioannidis@gflenv.com T: (416)678-9340