

## **OIL ANALYSIS REPORT**

Sample Rating Trend





DIAGNOSIS Recommendation

Contamination

Fluid Condition

Wear

oil.

Machine Id 412002

Fluid

Resample at the next service interval to monitor.

There is no indication of any contamination in the

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

oil is suitable for further service.

All component wear rates are normal.

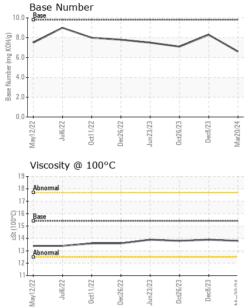
Component Diesel Engine

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

N SHP 15W40 (	•	May2022	Jul2022 Oct2022 Dec20	22 Jun2023 Oct2023 Dec2023	Mar2024	
SAMPLE INFOR	MATION	method	limit/base	current	history1	history
Sample Number		Client Info		GFL0116163	GFL0092609	GFL009261
Sample Date		Client Info		20 Mar 2024	08 Dec 2023	26 Oct 2023
Machine Age	hrs	Client Info		5775	5172	4940
Oil Age	hrs	Client Info		603	238	571
Oil Changed		Client Info		Changed	Not Changd	Not Change
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history
Iron	ppm	ASTM D5185m	>120	10	7	7
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>5	1	<1	<1
Titanium	ppm	ASTM D5185m	>2	<1	<1	0
Silver	ppm	ASTM D5185m	>2	0	0	<1
Aluminum	ppm	ASTM D5185m	>20	3	3	2
Lead	ppm	ASTM D5185m	>40	1	0	0
Copper	ppm	ASTM D5185m	>330	3	4	3
Tin	ppm	ASTM D5185m	>15	1	<1	<1
Vanadium	ppm	ASTM D5185m		<1	<1	0
Cadmium	ppm	ASTM D5185m		<1	<1	0
ADDITIVES		method	limit/base	current	history1	history
Boron	ppm	ASTM D5185m	0	10	1	3
Barium	ppm	ASTM D5185m	0	1	0	0
Molybdenum	ppm	ASTM D5185m	60	68	85	56
Manganese	ppm	ASTM D5185m	0	<1	<1	<1
Magnesium	ppm	ASTM D5185m	1010	1003	1415	901
Calcium	ppm	ASTM D5185m	1070	1220	1475	952
Phosphorus	ppm	ASTM D5185m	1150	1083	1408	937
Zinc	ppm	ASTM D5185m	1270	1313	1742	1155
Sulfur	ppm	ASTM D5185m	2060	3139	4792	2529
CONTAMINAN	ITS	method	limit/base	current	history1	history
Silicon	ppm	ASTM D5185m	>25	4	6	3
Sodium	ppm	ASTM D5185m		1	6	5
Potassium	ppm	ASTM D5185m	>20	2	3	3
INFRA-RED		method	limit/base	current	history1	history
Soot %	%	*ASTM D7844	>4	0.4	0.2	0.4
Nitration	Abs/cm	*ASTM D7624	>20	8.9	6.4	8.6
Sulfation	Abs/.1mm	*ASTM D7415	>30	19.8	18.6	20.1
FLUID DEGRA		method	limit/base	current	history1	history
Oxidation	Abs/.1mm	*ASTM D7414	>25	16.4	14.6	16.5
Base Number (BN)	mg KOH/g	ASTM D2896	9.8	6.6	8.3	7.1



## **OIL ANALYSIS REPORT**



<b>maaaaaaaa</b>	VISUAL		method	limit/base	current	history1	history2
	White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
$\sim$	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
		scalar	*Visual				NONE
+26/23	Appearance				-		NORML
0							NORML
				>0.2			NEG
	Free Water	scalar	*Visual		NEG	NEG	NEG
	FLUID PROP	ERTIES	method	limit/base	current	history1	history2
	Visc @ 100°C	cSt	ASTM D445	15.4	13.8	13.9	13.8
	GRAPHS						
	Ferrous Alloys						
~ ~ ~	iron						
ct26/2 Jec8/2	annon nickel						
0	10-			1			
	8- 8-		/				
	6-						
	4						
	2						
		3 2	C. C.	+			
	y12/2 Jul6/2 ct11/2	sc26/2 n23/2	ct26/2 lec8/2	ar20/2			
	W	_ ,	õ	M			
		als					
	40 - copper						
	35 - tin						
	E <sup>25</sup>						
	15						
	10						
	5	-					
		/22 - /23 -	/23				
	Jul6 Oct11	Dec26, Jun23,	Oct26, Dec8,	Mar20,			
	Res.			-	Daca Number		
	19 18 Abnormal			10.0			
	9			- 8.0	$\sim$		$\sim$
				KOH/6			$\sim$ $\setminus$
	0 0 15			Ē 6.0	1		
	13 Abnormal			ase N			
	12			2.0			
	11	3				3 5	
		3/23	0ct26/23 Dec8/23	Mar20/24	May12/22 Jul6/22 Oct11/22	Dec26/22 Jun23/23	0ct26/23 Dec8/23 Mar20/24
	y12/22 Jul6/22 ±11/22	12:	ec st		ng - 7 - 0	0	
	May12/22 Jul6/22 Oct11/22	Dec26/22 Jun23/23	Octž	Ma	Ξ O		Ma D
Laborato	M D				W		- 2
Laborato Sample N	≤ <sup>∞</sup> : WearCheck USA - 5 : : GFL0116163		n Ave., Cary i <b>ved</b> : 25	, NC 27513 Mar 2024	W	ronmental - 947	• WB Horicon HC 96 County Rd V
Sample N Lab Num	<ul> <li>WearCheck USA - 5</li> <li>: GFL0116163</li> <li>: 06128451</li> </ul>	01 Madiso Recei Teste	in Ave., Cary ived : 25	, NC 27513 Mar 2024 Mar 2024	GFL Envi	ronmental - 947	- WB Horicon HC 96 County Rd V Horicon, WI
Sample N Lab Num Unique Num	<ul> <li>WearCheck USA - 5</li> <li>: GFL0116163</li> <li>: 06128451</li> <li>: 10942602</li> </ul>	01 Madiso Recei Teste	in Ave., Cary ived : 25	, NC 27513 Mar 2024	GFL Envi	ronmental - 947 N729	- WB Horicon HC 96 County Rd V Horicon, WI US 53032
Sample N Lab Num Unique Num Test Packa	<ul> <li>WearCheck USA - 5</li> <li>: GFL0116163</li> <li>: 06128451</li> </ul>	01 Madiso Recei Teste Diagr	n Ave., Cary ived : 25 d : 26 nosed : 26	, NC 27513 Mar 2024 Mar 2024 Mar 2024 - W	GFL Envi	ronmental - 947 N729 Cont	- WB Horicon HC 96 County Rd V Horicon, WI
		White Metal Yellow Metal Precipitate Silt Debris Sand/Dirt Appearance Odor Emulsified Water Free Water FLUID PROP Visc @ 100°C GRAPHS Ferrous Alloys Usc @ 100°C GRAPHS Ferrous Metal Non-ferrous Metal Cor Enclosed Uses Ferrous Alloys Usc Street Visc @ 100°C	White Metal scalar Yellow Metal scalar Precipitate scalar Silt scalar Sand/Dirt scalar Appearance scalar Odor scalar Emulsified Water scalar Free Water scalar Free Water scalar Free Water scalar Free Water scalar Free Water scalar Mon-ferrous Metals Visc @ 100°C cSt GRAPHS Ferrous Alloys Non-ferrous Metals 45 45 45 45 45 45 45 45 45 45 45 45 45	White Metal scalar *Visual Yellow Metal scalar *Visual Debris scalar *Visual Sand/Dirt scalar *Visual Sand/Dirt scalar *Visual Appearance scalar *Visual Odor scalar *Visual Debris scalar *Visual Emulsified Water scalar *Visual Free Water scalar *Visual Mon-ferrous Alloys Visc @ 100°C cSt ASTM D445 GRAPHS Ferrous Alloys Viscosity @ 100°C Viscosity @ 100°C	White Metal scalar *Visual NONE Yellow Metal scalar *Visual NONE Precipitate scalar *Visual NONE Sitt scalar *Visual NONE Sand/Dirt scalar *Visual NONE Appearance scalar *Visual NORML Odor scalar *Visual NORML Odor scalar *Visual NORML Odor scalar *Visual NORML Odor scalar *Visual NORML Discogram of the scalar *Visual NORML Odor scalar *Visual NORML Sitt scalar *Visual NORML Odor scalar *Visual NORML Sitt scalar *Visual NORML Odor scalar *Visual NORML Emulsified Water scalar *Visual NORML Emulsified Water scalar *Visual Non-Ferrous Alloys 15.4 One-ferrous Metals One-ferrous Metals One-ferrous Metals Viscosity @ 100°C Viscosity @ 100°C Other former of the scalar *Visual NORM Non-ferrous Metals 0,000 Viscosity @ 100°C 0,000 0,	White Metal scalar 'Visual NONE NONE Precipitate scalar 'Visual NONE NONE Sitt scalar 'Visual NONE NONE Sand/Dirt scalar 'Visual NONE NONE Sand/Dirt scalar 'Visual NONE NONE Sand/Dirt scalar 'Visual NONE NONE Appearance scalar 'Visual NONE NONE Correct Scalar 'Visual NONE NONE Precipitate scalar 'Visual NONE NONE Sand/Dirt scalar 'Visual NONE NONE Sand/Dirt scalar 'Visual NONE NONE Sand/Dirt scalar 'Visual NONE NONE Precipitate scalar 'Visual NONE NONE Sand/Dirt scalar 'Visual NORML NOML NORML NORML NORML NORML NORML NOML N	White Metal scalar 'Visual NONE NONE NONE Precipitate scalar 'Visual NONE NONE NONE NONE Sand/Dirt scalar 'Visual NONE NONE NONE NONE Debris scalar 'Visual NONE NONE NONE NONE Appearance scalar 'Visual NORML NORML NORML Odor scalar 'Visual NORML

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Submitted By: See also GFL935 - Tim Kieffer