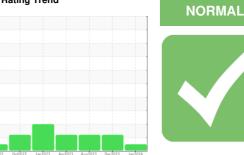


# **OIL ANALYSIS REPORT**

Sample Rating Trend



Machine Id 4632M

Component Diesel Engine

Fluid PETRO CANADA DURON SHP 15W40 (--- QTS)

## DIAGNOSIS

#### Recommendation

Resample at the next service interval to monitor. ( Customer Sample Comment: Resample )  $\label{eq:comment}$ 

### Wear

All component wear rates are normal.

#### Contamination

There is no indication of any contamination in the oil.

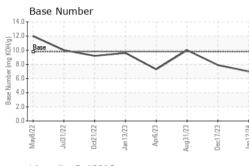
#### Fluid Condition

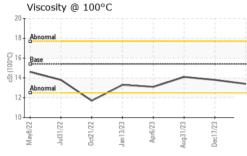
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0106660	GFL0097688	GFL0087299
Sample Date		Client Info		12 Jan 2024	17 Dec 2023	31 Aug 2023
Machine Age	hrs	Client Info		20707	20499	19636
Oil Age	hrs	Client Info		208	663	650
Oil Changed		Client Info		Not Changd	Changed	Changed
Sample Status				NORMAL	ABNORMAL	ATTENTION
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method	20.L	NEG	NEG	NEG
WEAR METAL	<u>د</u>	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	24	13	11
Chromium	ppm	ASTM D5185m	>20	1	<1	<1
Nickel	ppm		>4	3	0	0
Titanium	ppm	ASTM D5185m	0	0	0	0
Silver	ppm	ASTM D5185m	>3	<1	0	<1
Aluminum	ppm	ASTM D5185m	>20	<1	2	<1
Lead	ppm	ASTM D5185m	>40	0	0	<1
Copper	ppm	ASTM D5185m		31	3	2
Tin	ppm	ASTM D5185m	>15	1	0	<1
Vanadium	ppm	ASTM D5185m		<1	<1	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	9	11	7
Barium	ppm	ASTM D5185m	0	0	0	0
Molybdenum	ppm	ASTM D5185m	60	66	62	69
Manganese	ppm	ASTM D5185m	0	1	0	1
Magnesium	ppm	ASTM D5185m	1010	1044	860	1018
Calcium	ppm	ASTM D5185m	1070	1195	942	1168
Phosphorus	ppm	ASTM D5185m	1150	1091	996	1122
Zinc	ppm	ASTM D5185m	1270	1361	1189	1359
Sulfur	ppm	ASTM D5185m	2060	3121	2843	3992
CONTAMINAN	TS	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>25	8	8	8
Sodium	ppm	ASTM D5185m		2	<b>A</b> 319	<b>1</b> 88
Potassium	ppm	ASTM D5185m	>20	<1	3	4
INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>3	0.4	0.3	0
Nitration	Abs/cm	*ASTM D7624	>20	8.9	9.4	7.3
Sulfation	Abs/.1mm	*ASTM D7415	>30	20.5	19.9	21.1
FLUID DEGRA	DATION	method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	16.9	15.7	15.6
Base Number (BN)	mg KOH/g	ASTM D2896	9.8	7.0	7.9	10.0
	9.0.09		-			



# **OIL ANALYSIS REPORT**





						method	limit/base	current	history1	history2
-				White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
		~		Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
	$\checkmark$			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
07/011000	Apr6/23 -	1/23	7/23 -	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
30	Apr	Aug31/23	Dec17/23 Jan12/24	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		13.4	13.8	14.1
	-			GRAPHS						
				Ferrous Alloys						
				<sup>40</sup> T						
	Apr6/23	Aug31/23	Dec17/23	35 - chromium						
	Ag	Aug	Dec	30 - nickel						
				25 E 20			1			
				E 20						
				15						
							COLUMN TWO IS NOT			
				May8/22 - Jul31/22 - 0ct21/22 -	an 13/23 - Apr6/23 -	1/23 -	2/24 -			
				May Jul3 Oct2	Jan 13/23 Apr6/23	Aug31/23 Dec17/23	Jan 12/24			
				Non-ferrous Meta	ls					
				35						
				30 - copper			1			
				copper			/			
				30			/			
				30			/			
				20 15			/			
				30		/	/			
				20 25 15 10 5			/			
				30 copper   25 ead   15 10   5 ead		23	24			
				30 copper   25 ead   15 10   5 ead		ug31/23	lan 1224			
				30 25 20 15 0 5 0 10 5 0 10 10 5 0 10 10 10 10 10 10 10 10 10	Jan13/23 - Apr6/23 - Apr6/	Aug31/23 Bec17/23	Jan12/24			
				30 copper   25 ead   15 10   5 ead	Jan13/23 - Apr6/23 - Apr6/	Aug31/23 Dec17/23		Base Number		
				30 25 20 15 10 5 20 20 20 20 20 20 20 20 20 20	Jan13/23 - Apr6/23 - Apr6/	Aug31/23	14.0			
				30 25 20 15 10 5 20 20 15 10 5 20 20 20 20 20 20 20 20 20 20	Jan13/23 - Apr6/23 - Apr6/	Aug31/23	14.0			
				30 25 20 15 10 5 27 27 27 27 27 27 27 27 27 27	Jan13/23 - Apr6/23 - Apr6/	Aug31/23	14.0			
				30 25 20 15 10 5 27 27 27 27 27 27 27 27 27 27	Jan13/23 - Apr6/23 - Apr6/	Aug31/23	14.0			
				30 25 15 10 5 0 27 28 10 15 10 5 0 27 27 27 27 27 27 27 27 27 27	Jan13/23 - Apr6/23 - Apr6/	Aug31/23 - Dec17/23 -	14.0			
				30 25 15 10 5 0 20 15 10 5 0 20 15 10 15 10 10 15 10 10 15 10 10 15 10 10 10 10 10 10 10 10 10 10	Jan13/23 - Apr6/23 - Apr6/	Aug31/23 Dee17/23	14.0			
				30 25 15 10 5 0 27 28 10 15 10 5 0 27 27 27 27 27 27 27 27 27 27	Jan13/23 - Apr6/23 - Apr6/	Aug31/23	14.0			
				30 25 20 25 20 15 10 5 20 27 20 15 10 5 27 27 27 27 27 27 27 27 27 27	Ap6/23		14.0 12.0 ())))))))))))))))))))))))))))))))))))	Base	~	
				30 25 20 25 20 15 10 5 20 27 20 15 10 5 27 27 27 27 27 27 27 27 27 27	Ap6/23		14.0 12.0 ())))))))))))))))))))))))))))))))))))	Base	~	3/23
				30 25 15 10 5 0 26 15 10 5 0 27 20 15 10 5 0 27 27 27 27 27 27 27 27 27 27	Jan13/23 - Apr6/23 - Apr6/	Aug31/23 Aug31/23 Dec17/23	14.0 12.0 (9)10.0 0 000 8.0 9 000 8.0 10 000 8.0 10 000 8.0 1000 8.0 10 10 10 10 10 10 10 10 10 10 10 10 10		Jant 13/23	Aug31/23
				<sup>30</sup> <sup>25</sup> <sup>26</sup> <sup>26</sup> <sup>27</sup> <sup>20</sup> <sup>26</sup> <sup>27</sup> <sup>20</sup> <sup>20</sup> <sup>25</sup> <sup>20</sup> <sup>20</sup> <sup>25</sup> <sup>20</sup> <sup>20</sup> <sup>20</sup> <sup>20</sup> <sup>20</sup> <sup>20</sup> <sup>20</sup> <sup>20</sup>	Jan 13/23	Aug31/23 +	14.0 12.0 (0)(0)(0)(0)(0)(0)(0)(0)(0)(0)(0)(0)(0)(	2218/eW	Jan 13/23	
			oratory	30 25 10 5 10 5 10 5 10 15 10 5 10 15 10 10 15 10 10 15 10 10 15 10 10 15 10 10 10 10 10 10 10 10 10 10	Apr6/23	EZIJEBINY son Ave., Ca	14.0 12.0 (9)(HQ) Bul apqumq 4.0 2.0 52721uer ry, NC 27513	2218/eW	EZigudy vironmental - 4	05 - Arbor Hil
		Sam	pratory	30 25 10 25 10 5 10 5 10 5 10 15 10 10 15 10 10 15 10 10 15 10 10 15 10 10 10 10 15 10 10 10 10 10 10 10 10 10 10	Ezigudy 501 Madis Recieved	Ecilication Ave., Ca	14.0 12.0 ()(HQ) Bull 10.0 ()(HQ) Bull 10.0 ((HQ)	2218/eW	EZIEI uen vironmental - 4	<b>05 - Arbor Hil</b> 7400 Napier F
		Sam Lab	oratory	30 25 10 25 10 5 10 5 10 5 10 15 10 15 10 10 15 10 10 15 10 10 15 10 10 15 10 10 10 10 10 10 10 10 10 10	Apr6/23	cz/(cbmy son Ave., Ca d : 19 c ed : 22 c	14.0 12.0 (9)(HQ) Bul apqumq 4.0 2.0 52721uer ry, NC 27513	2218/eW	EZIEI uen vironmental - 4	

VISUAI method limit/base current historv1 historv2

\* - Denotes test methods that are outside of the ISO 17025 scope of accreditation.

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

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F: