

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id 4594M

Component Diesel Engine

Fluid PETRO CANADA DURON SHP 15W40 (--- 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

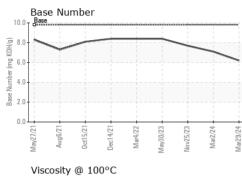
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

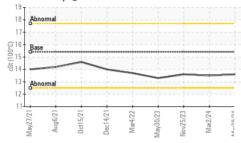
iAL)		May2021 Au	2021 Oct2021 Dec2021	Mar2022 May2023 Nov2023 Mar20	24 Mar2024	
SAMPLE INFOF	RMATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0117646	GFL0108982	GFL0101411
Sample Date		Client Info		29 Mar 2024	02 Mar 2024	25 Nov 2023
Machine Age	hrs	Client Info		10862	10691	10411
Oil Age	hrs	Client Info		0	0	2600
Oil Changed		Client Info		Changed	Not Changd	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINA	ΓΙΟΝ	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		NEG	NEG	NEG
WEAR METAI	_S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	59	43	24
Chromium	ppm	ASTM D5185m	>20	2	1	1
Nickel	ppm	ASTM D5185m	>4	<1	0	0
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>3	0	0	<1
Aluminum	ppm	ASTM D5185m	>20	6	4	3
_ead	ppm	ASTM D5185m	>40	0	0	0
Copper	ppm	ASTM D5185m	>330	2	1	1
Tin	ppm	ASTM D5185m	>15	0	0	<1
Vanadium	ppm	ASTM D5185m		<1	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	0	11	2
Barium	ppm	ASTM D5185m	0	0	0	0
Molybdenum	ppm	ASTM D5185m	60	60	55	54
Manganese	ppm	ASTM D5185m	0	<1	0	<1
Magnesium	ppm	ASTM D5185m	1010	925	822	863
Calcium	ppm	ASTM D5185m	1070	1061	940	955
Phosphorus	ppm	ASTM D5185m	1150	959	892	922
Zinc	ppm	ASTM D5185m	1270	1227	1028	1175
Sulfur	ppm	ASTM D5185m	2060	3252	2526	2675
CONTAMINA	NTS	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>25	7	6	5
Sodium	ppm	ASTM D5185m		11	14	9
Potassium	ppm	ASTM D5185m	>20	6	1	4
INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>3	1.6	1.3	1
Nitration	Abs/cm	*ASTM D7624	>20	13.5	11.5	10.3
Sulfation	Abs/.1mm	*ASTM D7415	>30	24.4	22.1	20.7
FLUID DEGRA	DATION	method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	21.5	18.5	16.7
Base Number (BN)	mg KOH/g	ASTM D2896	9.8	6.2	7.1	7.7



OIL ANALYSIS REPORT

VISUAL





					current		
-	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
24 +	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Mar2/24 Mar29/24	Odor			NORML	NORML	NORML	NORML
2		scalar	*Visual				
	Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
	Free Water	scalar	*Visual		NEG	NEG	NEG
	FLUID PROPE	ERTIES	method	limit/base	current	history1	history2
	Visc @ 100°C	cSt	ASTM D445	15.4	13.6	13.5	13.6
	GRAPHS						
	Ferrous Alloys						
	60			1			
Mar2/24	50 - seeses chromium						
N Car	40		/				
	<u>ڦ</u> 30						
	20						
	10-						
	May27/21 Aug6/21	Mar4/22 - Mav30/23 -	Nov25/23 - Mar2/24 -	Mar29/24 -			
	🛎 🔍 🖉 🖄 Non-ferrous Meta	2	No	Ma			
	10 _T						
	copper						
	8 - tin						
	6 -						
	6- Ed						
	6 udd 4						
	4						
		$\overline{\mathbf{A}}$					
				_			
		r4r22	55/23	8924			
	2	Mar4/22	Nov25/23 Mar2/24	Mat29/24			
	Viscosity @ 100°	2	Nov25/23	Mar29/24	Base Numbe	r	
	Viscosity @ 100%	2	Nov25/23		Base Numbe	r	
	Viscosity @ 100°	2	Nov25/23	10.0	Base Numbe	r	
	Viscosity @ 10000	2	Nov25/23	10.0	Base Numbe	r	
	Viscosity @ 10000	2	Nov25/23	10.0	Base Numbe	r	
	Viscosity @ 10000	2	Nov25/23	10.0	Base Numbe	r	
	Viscosity @ 100°	2	Nov25/23	10.0	Base Numbe		
	Viscosity @ 10000	2	Nov25/23	10.0 (0, 8.0 (0, HO) (0, HO) (Base Numbe	r	
	Viscosity @ 100%	2	Nov25/23	10.0	Base Numbe	r	
	4 2 0 12/12/5/H20 Viscosity @ 100° 10 10 10 10 10 10 10 10 10 10			10.0 (0, HO) (0, HO) (Base		
	4 2 0 12/12/5/H20 Viscosity @ 100° 10 10 10 10 10 10 10 10 10 10			10.0 (0, HO) (0, HO) (Base		25,23
	Viscosity @ 10000	2		10.0 (0)HOX DU Ja Mump see 8 2.0	Base Numbe	Deci4/21 Mart/22 May30/23	Nov25/23
	Viscosity @ 10000 12/5/190 Viscosity @ 10000 4 4 4 4 4 4 4 4 4 4 4 4 4	C Mar4/22	Nov25/23	0.0 8.0 0.6 0.0 8 ⁹³⁶⁹ Mumber (und KOH(0) 9.0 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	May21/21 Aug6/21 Dert15/21	Dec14/21	
	Viscosity @ 1000	C 	EZISZNON T Ave., Cary	10.0 (0)HOX B00 (0)HOX	May21/21 Aug6/21 Dert15/21		5 - Michigan Ea
poratory mpie No.	⁴ ² ¹ ¹ ¹ ¹ ¹ ¹ ¹ ¹ ¹ ¹	C ZZZ-HERW 2ZZ-HERW D1 Madisor Receiv	EZISZNON TAVe., Cary ved : 03	10.0 (0)HOX Bull Jaquing 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0	May21/21 Aug6/21 Dert15/21	EZOS ^{ke} W CZI ^b I ^{sa} O svironmental - 415	5 - Michigan E a 6200 Elmridg
mple No. Number	⁴ ² ¹ ¹ ¹ ¹ ¹ ¹ ¹ ¹ ¹ ¹	C ZZU-Jue W D1 Madisor Receiv Tested	+272mW E2/52/00N m Ave., Cary ved : 03 d : 04	10.0 (0)HOX Bull Jaquing 4.0 (0)HOX Bull Jaquing 4.0 (GFL En	EZOS ^{ke} W CZI ^b I ^{sa} O svironmental - 415	5 - Michigan Ea 6200 Elmrid ling Heights,
mple No. o Number	⁴ ² ¹ ¹ ¹ ¹ ¹ ¹ ¹ ¹ ¹ ¹	C ZZZ-HERW 2ZZ-HERW D1 Madisor Receiv	+272mW E2/52/00N m Ave., Cary ved : 03 d : 04	10.0 (0)HOX Bull Jaquing 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0	GFL En	EZIOE ^{ke} W CZI-J= Divironmental - 415 Ster	5 - Michigan Ea

To discuss this sample rep * - 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)

Certificate L2367

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