

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id 413059

Component Diesel Engine

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

DIAGNOSIS

Recommendation

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

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 acceptable for the time in service.

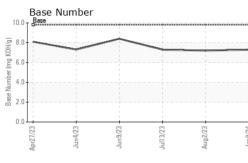
GAL)		Apr2023	Jun2023 Jun202	3 Jul2023 Aug2023	Jan2024	
SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0105543	GFL0085497	GFL0085494
Sample Date		Client Info		09 Jan 2024	02 Aug 2023	13 Jul 2023
Machine Age	mls	Client Info		65172	45612	42909
Oil Age	mls	Client Info		65172	45612	42909
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
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		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	9	4	8
Chromium	ppm	ASTM D5185m	>20	0	<1	0
Nickel	ppm	ASTM D5185m	>4	0	0	0
Titanium	ppm	ASTM D5185m		0	<1	0
Silver	ppm	ASTM D5185m	>3	0	<1	0
Aluminum	ppm	ASTM D5185m	>20	3	<1	6
Lead	ppm	ASTM D5185m	>40	<1	<1	<1
Copper	ppm	ASTM D5185m	>330	1	3	2
Tin	ppm	ASTM D5185m	>15	0	0	0
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	0	0	0
Barium	ppm	ASTM D5185m	0	0	0	0
Molybdenum	ppm	ASTM D5185m	60	54	38	43
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m	1010	0	8	10
Calcium	ppm	ASTM D5185m	1070	2717	2354	2618
Phosphorus	ppm	ASTM D5185m	1150	1165	1013	1071
Zinc	ppm	ASTM D5185m	1270	1350	1212	1254
Sulfur	ppm	ASTM D5185m	2060	3344	3578	3401
CONTAMINAN	ITS	method	limit/base	current	history1	history2
Silicon	ppm		>25	10	7	7
Sodium	ppm	ASTM D5185m		0	<1	0
Potassium	ppm	ASTM D5185m	>20	8	5	15
INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>3	0.2	0.1	0.2
Nitration	Abs/cm	*ASTM D7624	>20	8.5	6.2	8.3
Sulfation	Abs/.1mm	*ASTM D7415	>30	18.8	15.7	18.4
FLUID DEGRA	DATION	method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	11.2	9.1	10.3
Base Number (BN)	mg KOH/g	ASTM D2896	9.8	7.3	7.2	7.3

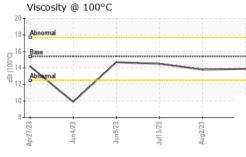
Page 1 of 2



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VISUAL





		VISUAL		method	limit/base	current	history1	history2
		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
Jul13/23	Aug2/23 Jan9/24	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Jult	Aug	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	ERTIES	method	limit/base	current	history1	history2
		Visc @ 100°C	cSt	ASTM D445	15.4	13.9	13.8	14.5
		GRAPHS						
		Ferrous Alloys						
23	23	60 iron						
Jul13/23	Aug2/23	50 - management chromium						
		40						
		<u>لة</u> 30						
		20						
		10						
		Apr27/23 Jun4/23	Jun9/23 Jul13/23	Aug2/23	Jan9/24			
		Apri	որ լոր	Aug	Jai			
		Non-ferrous Meta	ils					
		140 copper	1					
		120 - Research lead						
		100						
		60						
		40						
		20	· · · · · · · · · · · · · · · · · · ·					
		20						
		0	23	23	24			
		0	Jun9/23 -	Aug2/23	Jan9/24 -			
		0	-	Aug2/23	Jan9/24 -	Race Number		
		Viscosity @ 100°	-	Aug2/23	47/6uer r	Base Number		
		CZ/LZJdW Viscosity @ 100°	-	Aug2/23	10.0	Base Number		
		0 E27/226 Viscosity @ 100° 20 18 Abnomal 16 Base	-	Aug2/23	10.0	Base Number	<u> </u>	
		0 E27/226 Viscosity @ 100° 20 18 Abnomal 16 Base	-	Aug2/3	10.0	Base Number	<u> </u>	
		0 EZZ/12:04 Viscosity @ 100° 18 Abnomal 16 Base 16 Base 14 Abnomal	-	Aug2/23	10.0	Base Number	<u> </u>	
		0 EZZ/12/04 Viscosity @ 100°0 16 Base 16 Base	-	Aug2/3	(0,2000) (0,	Base Number		
		0 EZZ/12:04 Viscosity @ 100° 18 Abnomal 16 Base 16 Base 14 Abnomal	-	Aug2/3	0.0، 8.0، ۲۰۵۸ (ق) ۲۰۵۸ (Bu) ۲۰۹۹ (Bu)	Base Number		
		Viscosity @ 100° ²⁰ ²⁰ ¹⁸ ⁴ ²⁰ ¹⁶ ²⁰ ¹⁶ ²⁰ ¹⁶ ²⁰ ¹⁶ ²⁰ ²⁰ ¹⁶ ²⁰ ²⁰ ²⁰ ¹⁶ ²⁰ 	C		10.0 (6)HOX BU 100 (6)HOX BU 100 (10) 100 100 100 100 100 100 100 100 100	Base		
		Viscosity @ 100° ²⁰ ²⁰ ¹⁸ ⁴ ²⁰ ¹⁶ ²⁰ ¹⁶ ²⁰ ¹⁶ ²⁰ ¹⁶ ²⁰ ²⁰ ¹⁶ ²⁰ ²⁰ ²⁰ ¹⁶ ²⁰ 	C		10.0 (6)HOX BU 100 (6)HOX BU 100 (10) 100 100 100 100 100 100 100 100 100	Base	un9/23	ug2/23
		Uiscosity @ 100° 20 4 20 10 10 10 10 10 10 10 10 10 1	C	Aug2/23 -	10.0 (6,0 (6,0) (6,0) (6,0) (6,0) (6,0) (6,0) (7	Apri27/23	Jun923	Aug2/23 -
	Laboratory	Viscosity @ 100° ²⁰	C	son Ave., Ca	10.0 (B)HOY BUL See 9 (B)HOY BUL See 9 (B)HOY BUL See 9 (B)HOY BUL See 9 (B)HOY BUL See 9 (C)HOY BUL SEE 9 (Apri27/23	ronmental - 983 - Su	ugar Land Hauli
	Laboratory Sample No.	Viscosity @ 100° Viscosity @ 100° bnomal bnomal Control of the second Control of the s	C EZEUIN 501 Madis Recieved	son Ave., Ca	10.0 (BHO) BU Jack 8.0 (BHO) B	Apri27/23	ronmental - 983 - Su 16011 Wes	u gar Land Hauli St Belfort Stre
	Laboratory	Viscosity @ 100° Viscosity @ 100° bnomal Control of the second Control of the second C	C	son Ave., Ca 1 : 12 . ed : 16 .	10.0 (B)HOY BUL See 9 (B)HOY BUL See 9 (B)HOY BUL See 9 (B)HOY BUL See 9 (B)HOY BUL See 9 (C)HOY BUL SEE 9 (Apri27/23	ronmental - 983 - Su 16011 Wes	ugar Land Hauli
	Laboratory Sample No. Lab Number Unique Number Test Package	Viscosity @ 100° Viscosity @ 100° bnomal Control of the second Control of the second C	C EZEUIII 501 Madis Recieved Diagnost	son Ave., Ca son i 12, ed 16, ician Dor	10.0 (6)(0) (0) (0) (0) (0) (0) (0) (0) (0) (0)	Apri27/23	ronmental - 983 - Si 16011 Wes S Contac	u gar Land Hauli St Belfort Stre Sugar Land, 1

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

Submitted By: TECHNICIAN ACCOUNT