

OIL ANALYSIS REPORT

Sample Rating Trend





Machine Id 727153 Component Diesel Engine

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

	ωль)	Feb2023	Apr2023	Sep2023 Nov2023	Mar2024	
SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0113009	GFL0098415	GFL008950
Sample Date		Client Info		06 Mar 2024	08 Nov 2023	20 Sep 202
Machine Age	hrs	Client Info		9651	9126	9126
Oil Age	hrs	Client Info		9651	9355	0
Oil Changed		Client Info		Changed	Changed	N/A
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
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	history2
Iron	ppm	ASTM D5185m	>120	8	6	11
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>5	0	0	<1
Titanium	ppm	ASTM D5185m	>2	<1	<1	0
Silver	ppm	ASTM D5185m	>2	<1	<1	0
Aluminum	ppm	ASTM D5185m	>20	2	1	0
Lead	ppm	ASTM D5185m	>40	1	<1	2
Copper	ppm	ASTM D5185m	>330	4	2	4
Tin	ppm	ASTM D5185m	>15	<1	0	<1
Vanadium	ppm	ASTM D5185m		<1	0	0
Cadmium	ppm	ASTM D5185m		<1	0	0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	2	<1	2
Barium	ppm	ASTM D5185m	0	0	0	2
Molybdenum	ppm	ASTM D5185m	60	62	58	73
Manganese	ppm	ASTM D5185m	0	<1	0	<1
Magnesium	ppm	ASTM D5185m	1010	994	896	1055
Calcium	ppm	ASTM D5185m	1070	1095	1025	1194
Phosphorus	ppm		1150	1122	948	1152
Zinc	ppm	ASTM D5185m	1270	1243	1152	1357
Sulfur	ppm	ASTM D5185m	2060	3421	3259	3608
CONTAMINAN	TS	method	limit/base	current	history1	history2
Silicon						-
	ppm	ASTM D5185m	>25	3	2	3
Sodium	ppm ppm	ASTM D5185m ASTM D5185m	>25	3 0	2 0	3 0
Sodium	ppm	ASTM D5185m		0 2	0	0 <1
Sodium Potassium	ppm	ASTM D5185m ASTM D5185m	>20 limit/base	0 2	0 2	0 <1
Sodium Potassium INFRA-RED	ppm ppm	ASTM D5185m ASTM D5185m method	>20 limit/base >4	0 2 current	0 2 history1	0 <1 history
Sodium Potassium INFRA-RED Soot %	ppm ppm %	ASTM D5185m ASTM D5185m method *ASTM D7844	>20 limit/base >4 >20	0 2 current 2	0 2 history1 1.9	0 <1 history: 2.4
Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm % Abs/cm Abs/.1mm	ASTM D5185m ASTM D5185m method *ASTM D7844 *ASTM D7624	>20 limit/base >4 >20	0 2 current 2 6.7 20.2	0 2 history1 1.9 6.3	0 <1 2.4 7.6 21.5
Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm % Abs/cm Abs/.1mm	ASTM D5185m ASTM D5185m *ASTM D7844 *ASTM D7624 *ASTM D7415	>20 limit/base >4 >20 >30 limit/base	0 2 current 2 6.7 20.2	0 2 history1 1.9 6.3 20.5	0 <1 <u>history2</u> 2.4 7.6

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.

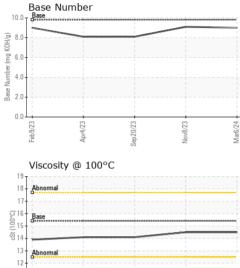


11 Feb9/23

Apr4/23

OIL ANALYSIS REPORT

VISUAL



	Abnormal 12 11 12 11 12 11 12 11 12 11 12 11 12 11	Sep20/23	Nov6/23	4 Harden Ha Harden Harden H	.0 -	Apr4/23	Sep20/23	Nov8/23	1 C. J.
	₹3 ₁₄			4 M	.0-				
	177 (7) 16 (8) 15 (7) 14			Base Number (mg KOH/g) 9 9 9					
	¹⁹	c		10	Base Nu	mber			
		~	Nov8/23	Mar6/24					
	E 20 15 10								
	35								
	Non-ferrous Meta		Nov	Mar					
		0/23							
	Ed 6			-					
Nov8/23	14 12								
	GRAPHS	cSt	ASTM D445	15.4	14.5		14.5	14.1	
			method	limit/base		ent	history1		ory2
	Emulsified Water	scalar	*Visual	>0.2	NEG	_	NEG	NEG	
Sep 20/23	Appearance	scalar	*Visual	NORML	NORM		NORML	NOR	ML
	Debris	scalar	*Visual	NONE	NONE		NONE	NON	E
	Precipitate	scalar	*Visual	NONE	NONE		NONE	NON	E
		Silt Debris Sand/Dirt Appearance Odor Emulsified Water Free Water Free Water FLUID PROPE Visc @ 100°C GRAPHS Ferrous Alloys Terrous Alloys Non-ferrous Metal 40 40 50 50 50 50 50 50 50 50 50 50 50 50 50	Yellow Metal scalar Precipitate scalar Silt scalar Debris scalar Sand/Dirt scalar Appearance scalar Codor scalar Emulsified Water scalar Free Water scalar Free Water scalar Free Water scalar Free Water scalar Free Water scalar Non-ferrous Alloys Non-ferrous Metals	Yellow Metal scalar 'Visual Precipitate scalar 'Visual Silt scalar 'Visual Debris scalar 'Visual Sand/Dirt scalar 'Visual Appearance scalar 'Visual Odor scalar 'Visual Emulsified Water scalar 'Visual Free Water Scalar 'Visual Non-ferrous Alloys Non-ferrous Metals	Yellow Metal Precipitate Scalar Visual NONE Sitt Scalar Visual NONE Sand/Dirt Scalar Visual NONE Sand/Dirt Scalar Visual NORML Odor Scalar Visual NORML Scalar Visual NORML Odor Scalar Visual NORML	Vellow Metal scalar *Visual NONE NONE Precipitate scalar *Visual NONE NONE Silt scalar *Visual NONE NONE Sand/Dirt scalar *Visual NONE NONE Appearance scalar *Visual NORML NORM Odor scalar *Visual NORML NORM Emulsified Water scalar *Visual NORML NORM Codor cscalar *Visual NORML NORM Emulsified Water scalar *Visual NORML NORM Emulsified Water scalar *Visual NORML NORM GRAPHS Free Water scalar *Visual NOR45 15.4 14.5 GRAPHS Ferrous Alloys Visc @ 100°C cSt ASTM D445 15.4 14.5 Votecosity @ 100°C	Yellow 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 Appearance scalar "Visual NORML NORML Odor scalar "Visual NORML NORML Odor scalar "Visual NORML	Yellow Metal scalar Visual NONE NONE NONE NONE Precipitate scalar Visual NONE NONE NONE NONE Sitt scalar Visual NONE NONE NONE Sand/Dirt scalar Visual NONE NONE NONE Sand/Dirt scalar Visual NONE NONE NONE Appearance scalar Visual NORML NORML NORML NORML NORML Odor scalar Visual NORML NORML NORML NORM Emulsified Water scalar Visual NORML NORML NORM Free Water scalar Visual NORML NORM NOR Visc @ 100°C cst ASTM D445 15.4 14.5 14.5 CRAPHS Ferrous Alloys 000 referrous Metals 000 referrous Meta	Yellow Metal scalar Visual NONE NONE NONE NONE NONE Precipitate scalar Visual NONE NONE NONE NONE NONE Setris scalar Visual NONE NONE NONE NONE NONE Sand/Dirt scalar Visual NONE NONE NONE NONE Appearance scalar Visual NORML NORML NORML NORM Odor scalar Visual NORML NORML NORML NORM Emulsified Water scalar Visual NORML NORML NORM Visual NORM NORM NORM NORM Visual NORM

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