

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id 524018

Component Diesel Engine

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

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

Metal levels are typical for a new component breaking in.

Contamination

There is no indication of any contamination in the oil.

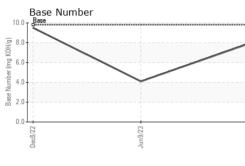
Fluid Condition

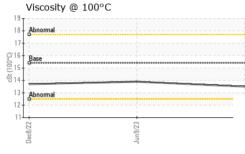
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

				Jun2023 Nov20		
SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0092805	GFL0080785	GFL0067263
Sample Date		Client Info		15 Nov 2023	09 Jun 2023	08 Dec 2022
Machine Age	hrs	Client Info		600	0	600
Oil Age	hrs	Client Info		600	0	0
Oil Changed		Client Info		Not Changd	Not Changd	N/A
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>6.0	<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	>100	30	7	6
Chromium	ppm	ASTM D5185m	>20	1	<1	<1
Nickel	ppm	ASTM D5185m	>2	0	0	<1
Titanium	ppm	ASTM D5185m		0	<1	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>25	8	<1	<1
Lead	ppm	ASTM D5185m	>40	0	<1	1
Copper	ppm	ASTM D5185m	>330	3	<1	4
Tin	ppm	ASTM D5185m	>15	<1	<1	<1
Vanadium	ppm	ASTM D5185m		0	<1	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	<1	12	4
Barium	ppm	ASTM D5185m	0	0	0	0
Molybdenum						
	ppm	ASTM D5185m	60	65	65	61
Manganese	ppm ppm	ASTM D5185m ASTM D5185m		65 <1	65 <1	61 <1
•						
Manganese	ppm	ASTM D5185m	0	<1	<1	<1
Manganese Magnesium	ppm ppm	ASTM D5185m ASTM D5185m	0 1010	<1 1045	<1 973	<1 948
Manganese Magnesium Calcium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 1010 1070	<1 1045 1145	<1 973 1394	<1 948 1136
Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 1010 1070 1150	<1 1045 1145 1080	<1 973 1394 1020	<1 948 1136 991
Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 1010 1070 1150 1270	<1 1045 1145 1080 1369	<1 973 1394 1020 1346	<1 948 1136 991 1323
Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 1010 1070 1150 1270 2060	<1 1045 1145 1080 1369 3125	<1 973 1394 1020 1346 3789	<1 948 1136 991 1323 3654
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 1010 1070 1150 1270 2060 limit/base	<1 1045 1145 1080 1369 3125 current	<1 973 1394 1020 1346 3789 history1	<1 948 1136 991 1323 3654 history2
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	0 1010 1070 1150 1270 2060 limit/base	<1 1045 1145 1080 1369 3125 current 5	<1 973 1394 1020 1346 3789 history1 4	<1 948 1136 991 1323 3654 history2 3
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m ASTM D5185m	0 1010 1070 1150 1270 2060 limit/base >25	<1 1045 1145 1080 1369 3125 current 5 8	<1 973 1394 1020 1346 3789 history1 4 2	<1 948 1136 991 1323 3654 history2 3 2
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 1010 1070 1150 1270 2060 <i>limit/base</i> >25 >20	<1 1045 1145 1080 1369 3125 current 5 8 14	<1 973 1394 1020 1346 3789 history1 4 2 <1	<1 948 1136 991 1323 3654 history2 3 2 1
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 1010 1070 1150 1270 2060 <i>limit/base</i> >25 >20	<1 1045 1145 1080 1369 3125 current 5 8 14 current	<1 973 1394 1020 1346 3789 history1 4 2 <1 kistory1	<1 948 1136 991 1323 3654 history2 3 2 1 1 history2
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >3	<1 1045 1145 1080 1369 3125 current 5 8 14 current 0.8	<1 973 1394 1020 1346 3789 history1 4 2 <1 4 2 <1 history1 0.1	<1 948 1136 991 1323 3654 history2 3 2 1 1 history2 0.3
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D7844 *ASTM D7624	0 1010 1070 1150 1270 2060 <i>limit/base</i> >25 20 <i>limit/base</i> >3 >20	<1 1045 1145 1080 1369 3125 current 5 8 14 Current 0.8 10.1	<1 973 1394 1020 1346 3789 history1 4 2 <1 history1 0.1 13.6	<1 948 1136 991 1323 3654 history2 3 2 1 1 history2 0.3 6.1
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D7844 *ASTM D7624	0 1010 1070 1150 1270 2060 imit/base >25 >20 imit/base >3 >20 >30	<1 1045 1145 1080 1369 3125 current 5 8 14 current 0.8 10.1 20.9	<1 973 1394 1020 1346 3789 history1 4 2 <1 4 2 <1 0.1 0.1 13.6 27.4	<1 948 1136 991 1323 3654 history2 3 2 1 history2 0.3 6.1 19.4
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAD	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m *ASTM D7844 *ASTM D7844 *ASTM D7624 *ASTM D7415	0 1010 1070 1150 1270 2060 imit/base >25 	<1 1045 1145 1080 1369 3125 current 5 8 14 current 0.8 10.1 20.9 current	<1 973 1394 1020 1346 3789 history1 4 2 <1 history1 0.1 13.6 27.4 history1	<1 948 1136 991 1323 3654 history2 3 2 1 history2 0.3 6.1 19.4 history2



OIL ANALYSIS REPORT





		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
\checkmark		Silt	scalar	*Visual	NONE	NONE	NONE	NONE
		Debris	scalar	*Visual	NONE	NONE	NONE	NONE
		Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Jun9/23	Vov15/23	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Jur	Nov	Odor	scalar	*Visual	NORML	NORML	NORML	NORML
		Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
		Free Water	scalar	*Visual		NEG	NEG	NEG
		FLUID PROI	PERTIES	method	limit/base	current	history1	history2
		Visc @ 100°C	cSt	ASTM D445	15.4	13.5	13.9	13.7
		GRAPHS						
		Ferrous Alloys						
		³⁰ T			/			
Jun9/23		25 - iron						
ηr		20						
		Ē 15-						
		e 15		/				
		10	/					
		5-						
		22	/23		/23			
		Dec8/22	Jun9/23		Nov15/23			
		Non-ferrous Me	talc		2			
		Non-remous Me						
		10 T						
		10 copper						
		¹⁰ T						
		10 copper						
		8 6						
		10 copper						
		10 8 6 4						
		8 6						
		10 8 6 4						
		10 8 10 10 10 10 10 10 10 10 10 10			12/23			
		10 8 6 4	Ezgunf		Nov15/23			
		Viscosity @ 100	Jun923		Nov15/23	Base Number		
		Viscosity @ 100	Jun923		Nov1	Base Number		
		Viscosity @ 100	Jun923		10.0	Base		
		Viscosity @ 100	Jun923		10.0	Base		
		Viscosity @ 100	Jun923		10.0	Base		
		Viscosity @ 100	Jun923		10.0	Base		
		Viscosity @ 100	Jun923		10.0	Base		
		Viscosity @ 100	Jun923		10.0	Base		
		Viscosity @ 100	Jun923		Nov1	Base		
		Viscosity @ 100	D _o C		10.0 (0,HO) Bull Jack 4.0 2.0 0.0	Base		
		Viscosity @ 100	Jun923		10.0 (0,HO) Bull Jack 4.0 2.0 0.0	Base	2018/23	
THE LIGHT	Laboratory Sample No. Lab Number Unique Number Test Package	Viscosity @ 100 Anormal WearCheck USA : WearCheck USA : GFL0092805 : 06014827 : 10753971	0°C	d : 22 ed : 23	10.0 10.0 8.0 0.0 8.0 0.0 8.0 0.0 8.0 0.0 0	December 200	EZEMAN EZEMAN FL Environmen 205 Flin	ntal - 455 - Fli 51 W. Bristol I nt Township, US 485 IARK WOMB

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

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