

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id 929055

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

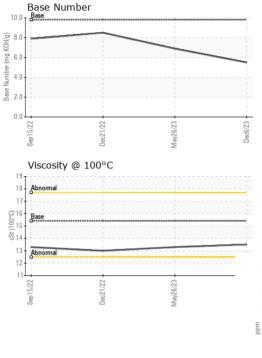
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

				May2023 Di		
SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0069906	GFL0059590	GFL0059582
Sample Date		Client Info		06 Dec 2023	26 May 2023	21 Dec 2022
Machine Age	hrs	Client Info		10371	9128	8129
Oil Age	hrs	Client Info		10371	0	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	>5	<1.0	<1.0	<1.0
Water		WC Method		NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>110	12	8	27
Chromium	ppm	ASTM D5185m	>4	0	<1	<1
Nickel		ASTM D5185m		0	0	0
Titanium	ppm	ASTM D5185m	<i>>L</i>	0	0	0
Silver	ppm	ASTM D5185m	>2		0	0
	ppm			0		
Aluminum	ppm	ASTM D5185m	>25	3	3	0
Lead	ppm	ASTM D5185m	>45	0	0	0
Copper	ppm	ASTM D5185m	>85	1	<1	2
Tin	ppm	ASTM D5185m	>4	0	0	<1
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 0	history1 8	history2 0
	ppm ppm	ASTM D5185m				
Boron		ASTM D5185m	0	0	8	0
Boron Barium	ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0	0 0	8 0	0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	0 0 60	8 0 56	0 0 2
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	0 0 60 <1	8 0 56 <1	0 0 2 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	0 0 60 <1 971	8 0 56 <1 886	0 0 2 <1 36
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	0 0 60 <1 971 859	8 0 56 <1 886 1272	0 0 2 <1 36 2111
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150	0 0 60 <1 971 859 921	8 0 56 <1 886 1272 973	0 0 2 <1 36 2111 796
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270	0 0 60 <1 971 859 921 1069	8 0 56 <1 886 1272 973 1211	0 0 2 <1 36 2111 796 943
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	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	0 0 60 0 1010 1070 1150 1270 2060	0 0 60 <1 971 859 921 1069 2741	8 0 56 <1 886 1272 973 1211 3478	0 0 2 <1 36 2111 796 943 3152
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	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	0 0 60 1010 1070 1150 1270 2060	0 0 60 <1 971 859 921 1069 2741 current	8 0 56 <1 886 1272 973 1211 3478 history1	0 0 2 <1 36 2111 796 943 3152 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method	0 0 60 1010 1070 1150 1270 2060	0 0 60 <1 971 859 921 1069 2741 2741 <u>current</u> 4	8 0 56 <1 886 1272 973 1211 3478 history1 4	0 0 2 <1 36 2111 796 943 3152 history2 4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base	0 0 60 <1 971 859 921 1069 2741 <u>current</u> 4 <	8 0 56 <1 886 1272 973 1211 3478 history1 4 2	0 0 2 <1 36 2111 796 943 3152 history2 4 <1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >30	0 0 60 <1 971 859 921 1069 2741 <i>current</i> 4 <1 <1	8 0 56 <1 886 1272 973 1211 3478 history1 4 2 2	0 0 2 <1 36 2111 796 943 3152 history2 4 <1 2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >30 200 limit/base	0 0 60 <1 971 859 921 1069 2741 <i>current</i> 4 <1 <1 <1 <i>current</i> 0.7	8 0 56 <1 886 1272 973 1211 3478 history1 4 2 2 2 history1 0.4	0 0 2 <1 36 2111 796 943 3152 history2 4 <1 2 history2 0.2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 Imit/base >30	0 0 60 <1 971 859 921 1069 2741 <i>current</i> 4 <1 <1 <1	8 0 56 <1 886 1272 973 1211 3478 history1 4 2 2 2 history1	0 0 2 <1 36 2111 796 943 3152 history2 4 <1 2 history2
Boron Barium Molybdenum 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	0 0 0 1010 1070 1150 1270 2060 imit/base >30 220 imit/base >3 220	0 0 60 <1 971 859 921 1069 2741 <i>current</i> 4 <1 <1 <1 <i>current</i> 0.7 11.1	8 0 56 <1 886 1272 973 1211 3478 history1 4 2 2 2 history1 0.4 10.7	0 0 2 <1 36 2111 796 943 3152 history2 4 <1 2 history2 0.2 8.4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415	0 0 0 1010 1070 1150 1270 2060 2060 2060 2060 200 200 200 200 20	0 0 60 <1 971 859 921 1069 2741 <i>current</i> 4 <1 <1 <i>current</i> 0.7 11.1 23.3 <i>current</i>	8 0 56 <1 886 1272 973 1211 3478 history1 4 2 2 history1 0.4 10.7 22.0 history1	0 0 2 <1 36 2111 796 943 3152 history2 4 <1 2 history2 0.2 8.4 22.6 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >30 imit/base >3 >20 >3	0 0 60 <1 971 859 921 1069 2741 <u>current</u> 4 <1 <1 <1 0.7 11.1 23.3	8 0 56 <1 886 1272 973 1211 3478 history1 4 2 2 2 history1 0.4 10.7 22.0	0 0 2 <1 36 2111 796 943 3152 history2 4 <1 2 history2 0.2 8.4 22.6



OIL ANALYSIS REPORT

VISUAL



Certificate L2367	Laboratory Sample No. Lab Number Unique Numbe Test Package	: : r :	WearCheck USA - GFL0069906 06030166 10779957 FLEET	501 Madia Received Diagnose Diagnost	son Ave., Cary, NC 27513 d : 11 Dec 2023 ed : 12 Dec 2023			GFL Environmental - 902 - Chilton HC 428 High St Chilton, WI US 53014 Contact: Keith Mueller keith.mueller@gflenv.com T: (920)374-1404			
		13 12 11	Sep15/22		May26/23	.2 Base .0.		Dec21/22	May26/23	Dec6/23	
		() 20015 15 14	Base			8 Base Number (mg KOH/g) • •	0-				
		19 18 17	Abnormal				0 Base				
		0	Viscosity @ 100%	c	May26/23	Dec6/23	Base Nun	abor			
		6 udd 4 2									
		10 8	Non-ferrous Meta	als							
		5	Sep 15/22		May26/23	Dec6/23					
ā	W	20 톱 15 10				_					
Dec21/22 +	May26/23 +	30 25	Ferrous Alloys								
			/isc @ 100°C GRAPHS	cSt	ASTM D445	15.4	13.5	13.3	13.0		
			FLUID PROPE	ERTIES	method	limit/base	curren	t history1	his	tory2	
)°C	1		Free Water	scalar	*Visual	>0.2	NEG	NEG	NEG		
	Mavi		Ddor Emulsified Water	scalar scalar	*Visual *Visual	NORML >0.2	NORML NEG	NORML NEG	NOR NEG		
Dec21/22 -	May26/23 + Dec6/23 +		Appearance	scalar scalar	*Visual	NORML	NORML		NOR		
			Debris Sand/Dirt	scalar	*Visual *Visual	NONE NONE	NONE NONE	NONE	NON		
		S	Silt	scalar	*Visual	NONE	NONE	NONE	NON		
			Yellow Metal Precipitate	scalar scalar	*Visual *Visual	NONE NONE	NONE NONE	NONE	NON		
		\	White Metal	scalar	*Visual	NONE	NONE	NONE	NON	IE	

Contact/Location: See also GFL903 - Keith Mueller - GFL902