

OIL ANALYSIS REPORT

Sample Rating Trend

NORMAL



424042-402401

Component Diesel Engine Fluid

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

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.

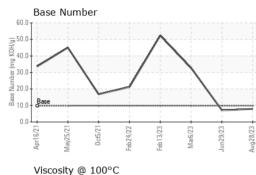
Fluid Condition

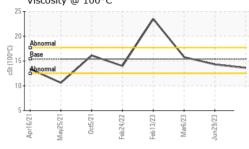
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0071929	GFL0081524	GFL0071954
Sample Date		Client Info		28 Aug 2023	29 Jun 2023	06 Mar 2023
Machine Age	hrs	Client Info		32921	32901	32873
Oil Age	hrs	Client Info		600	600	600
Oil Changed	1113	Client Info		Changed	Not Changd	Oil Added
-		Client Inio		NORMAL	ABNORMAL	SEVERE
Sample Status				NORMAL	ADNORIVIAL	SEVENE
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
Glycol		WC Method		NEG	0.0	0.20
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>120	10	3	37
Chromium	ppm	ASTM D5185m	>20	0	<1	2
Nickel	ppm	ASTM D5185m	>5	0	0	2
Titanium	ppm	ASTM D5185m	>2	0	0	0
Silver	ppm	ASTM D5185m	>2	0	0	<1
Aluminum	ppm	ASTM D5185m	>20	2	0	4
Lead	ppm	ASTM D5185m	>40	2	2	16
Copper	ppm		>330	0	12	33
Tin	ppm	ASTM D5185m	>15	0	<1	2
Vanadium	ppm	ASTM D5185m		0	0	<1
Cadmium	ppm	ASTM D5185m		0	<1	2
	1-1-		11 1.0			
ADDITVES		method	limit/base		history1	history2
ADDITIVES	nnm	method	limit/base	current	history1 2	history2 96
Boron	ppm	ASTM D5185m	0	<1	2	96
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	<1 0	2 0	96 4
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	<1 0 59	2 0 82	96 4 217
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	<1 0 59 0	2 0 82 <1	96 4 217 2
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	<1 0 59 0 935	2 0 82 <1 758	96 4 217 2 678
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	<1 0 59 0 935 1191	2 0 82 <1 758 987	96 4 217 2 678 955
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	<1 0 59 0 935 1191 997	2 0 82 <1 758 987 929	96 4 217 2 678 955 900
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	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	<1 0 59 0 935 1191 997 1274	2 0 82 <1 758 987 929 1163	96 4 217 2 678 955 900 1058
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	0 0 60 0 1010 1070 1150 1270 2060	<1 0 59 0 935 1191 997	2 0 82 <1 758 987 929 1163 3148	96 4 217 2 678 955 900 1058 2482
Boron Barium Molybdenum 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 ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	<1 0 59 0 935 1191 997 1274 3652 current	2 0 82 <1 758 987 929 1163 3148 history1	96 4 217 2 678 955 900 1058 2482 history2
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	0 0 60 1010 1070 1150 1270 2060	<1 0 59 0 935 1191 997 1274 3652	2 0 82 <1 758 987 929 1163 3148	96 4 217 2 678 955 900 1058 2482
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	0 0 60 1010 1070 1150 1270 2060	<1 0 59 0 935 1191 997 1274 3652 current	2 0 82 <1 758 987 929 1163 3148 history1	96 4 217 2 678 955 900 1058 2482 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 0 1010 1070 1150 1270 2060 limit/base	<1 0 59 0 935 1191 997 1274 3652 current 4	2 0 82 <1 758 987 929 1163 3148 history1 4	96 4 217 2 678 955 900 1058 2482 history2 9
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm 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	<1 0 59 0 935 1191 997 1274 3652 current 4 3	2 0 82 <1 758 987 929 1163 3148 history1 4 ▲ 62	96 4 217 2 678 955 900 1058 2482 history2 9 9 ▲ 1043
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25	<1 0 59 0 935 1191 997 1274 3652 current 4 3 6	2 0 82 <1 758 987 929 1163 3148 history1 4 4 62 4 134	96 4 217 2 678 955 900 1058 2482 history2 9 ▲ 1043 ▲ 1113
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 Limit/base >20	<1 0 59 0 935 1191 997 1274 3652 current 4 3 6 current	2 0 82 <1 758 987 929 1163 3148 history1 4 62 ▲ 62 134	96 4 217 2 678 955 900 1058 2482 history2 9 ▲ 1043 ▲ 1113
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 ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 Limit/base >20	<1 0 59 0 935 1191 997 1274 3652 <i>current</i> 4 3 6 <i>current</i>	2 0 82 <1 758 987 929 1163 3148 history1 4 62 134 134 history1 0.7	96 4 217 2 678 955 900 1058 2482 history2 9 ▲ 1043 ▲ 1113 history2 1.7
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 2060 225 20 225 20 imit/base >4 20 20	<1 0 59 0 935 1191 997 1274 3652 <i>current</i> 4 3 6 <i>current</i> 0.5 8.3	2 0 82 <1 758 987 929 1163 3148 history1 4 62 134 62 134 0.7 9.2 21.4	96 4 217 2 678 955 900 1058 2482 1058 2482 1043 ▲ 1043 ▲ 1113 1113 1.7 21.1 11.6
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 D7844 *ASTM D7844	0 0 0 1010 1070 1150 1270 2060 2060 225 20 225 20 220 20 20 20 20 20 20 20 20 20 20 20	<1 0 59 0 935 1191 997 1274 3652 current 4 3 6 current 0.5 8.3 19.9 current	2 0 82 <1 758 987 929 1163 3148 history1 4 62 4 62 134 134 0.7 9.2 21.4 history1	96 4 217 2 678 955 900 1058 2482 1058 1058 2482 1058 1
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 2060 225 20 220 220 20 20 20 20 20 20 20 20 20 2	<1 0 59 0 935 1191 997 1274 3652 <u>current</u> 4 3 6 <u>current</u> 0.5 8.3 19.9	2 0 82 <1 758 987 929 1163 3148 history1 4 62 134 62 134 0.7 9.2 21.4	96 4 217 2 678 955 900 1058 2482 1058 2482 1043 ▲ 1043 ▲ 1113 history2 1.7 21.1 11.6



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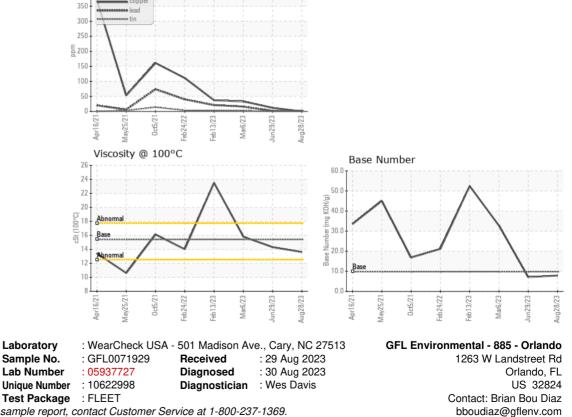


VISUAL		method				history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
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	RTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	13.6	14.3	15.8
GRAPHS						

Ferrous Alloys Apr16/21-Feb24/22 /lav25/21 0ct5/21 Feb 13/23 Non-ferrous Metals lead

180 160

400



To discuss this sample report, contact Customer Service at 1-800-237-1369.

* - 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

Submitted By: TIMOTHY MOURER

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