

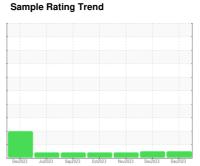
# **OIL ANALYSIS REPORT**



(13J6UU) 913036 Component

**Diesel Engine** 

PETRO CANADA DURON UHP 5W30 (--- GAL)





# DIAGNOSIS

### Recommendation

No corrective action is recommended at this time. Resample at the next service interval to monitor. Please note that this is a corrected copy for data entry updates.

### Wear

All component wear rates are normal.

### Contamination

Fuel content negligible. There is no indication of any contamination in the oil.

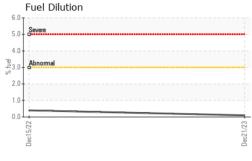
# **Fluid Condition**

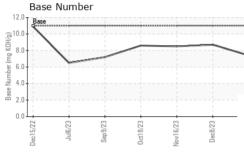
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

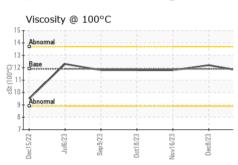
5N 6111 5W36 (	J.,	Dec2022	Juizuza aspzuza	UCIZUZ3 NOVZUZ3 DECZUZ3	Dec2023	
SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0102479	GFL0102415	GFL0098656
Sample Date		Client Info		21 Dec 2023	08 Dec 2023	16 Nov 2023
Machine Age	hrs	Client Info		3491	3438	3306
Oil Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		Not Changd	Not Changd	N/A
Sample Status				NORMAL	NORMAL	ATTENTION
CONTAMINAT	ION	method	limit/base	current	history1	history2
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	11	5	5
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>5	1	4	1
Titanium	ppm	ASTM D5185m	>2	0	0	0
Silver	ppm	ASTM D5185m	>2	0	0	<1
Aluminum	ppm	ASTM D5185m	>20	2	2	2
Lead	ppm	ASTM D5185m	>40	<1	0	<1
Copper	ppm	ASTM D5185m	>330	4	1	2
Tin	ppm	ASTM D5185m	>15	<1	<1	<1
Vanadium	ppm	ASTM D5185m		0	<1	0
Cadmium	ppm	ASTM D5185m		0	<1	0
ADDITIVES		mathad	limit/base	current	history1	history2
ADDITIVES		method			HISTOLAL	
Boron	ppm	ASTM D5185m	0	17	33	25
	ppm					
Boron Barium	ppm	ASTM D5185m	0	17	33	25
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0	17 0	33 0	25 0
Boron Barium Molybdenum Manganese	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 64	17 0 59 <1	33 0 56	25 0 52
Boron Barium Molybdenum	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 64 0	17 0 59 <1 1190	33 0 56 <1	25 0 52 <1
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 64 0 1160	17 0 59 <1 1190 892	33 0 56 <1 1039 839	25 0 52 <1 1022 778
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 64 0 1160 820	17 0 59 <1 1190	33 0 56 <1 1039	25 0 52 <1 1022 778 1054
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 64 0 1160 820 1160	17 0 59 <1 1190 892 1064	33 0 56 <1 1039 839 1071	25 0 52 <1 1022 778
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 ASTM D5185m	0 0 64 0 1160 820 1160 1260	17 0 59 <1 1190 892 1064 1333	33 0 56 <1 1039 839 1071 1246	25 0 52 <1 1022 778 1054 1207
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 64 0 1160 820 1160 1260 3000	17 0 59 <1 1190 892 1064 1333 3274	33 0 56 <1 1039 839 1071 1246 3357	25 0 52 <1 1022 778 1054 1207 3154
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 64 0 1160 820 1160 1260 3000	17 0 59 <1 1190 892 1064 1333 3274	33 0 56 <1 1039 839 1071 1246 3357	25 0 52 <1 1022 778 1054 1207 3154 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 64 0 1160 820 1160 1260 3000	17 0 59 <1 1190 892 1064 1333 3274 current 6	33 0 56 <1 1039 839 1071 1246 3357 history1	25 0 52 <1 1022 778 1054 1207 3154 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 64 0 1160 820 1160 1260 3000 limit/base >25	17 0 59 <1 1190 892 1064 1333 3274 current 6 6	33 0 56 <1 1039 839 1071 1246 3357 history1 8 6	25 0 52 <1 1022 778 1054 1207 3154 history2 5 6
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm	ASTM D5185m	0 0 64 0 1160 820 1160 1260 3000 limit/base >25	17 0 59 <1 1190 892 1064 1333 3274 current 6 6 5	33 0 56 <1 1039 839 1071 1246 3357 history1 8 6 2	25 0 52 <1 1022 778 1054 1207 3154 history2 5 6 6
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel	ppm	ASTM D5185m	0 0 64 0 1160 820 1160 1260 3000 limit/base >25 >20 >3.0	17 0 59 <1 1190 892 1064 1333 3274 current 6 6 5 0.1	33 0 56 <1 1039 839 1071 1246 3357 history1 8 6 2 <1.0	25 0 52 <1 1022 778 1054 1207 3154 history2 5 6 6 <1.0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot %	ppm	ASTM D5185m	0 0 64 0 1160 820 1160 1260 3000 limit/base >25 >20 >3.0	17 0 59 <1 1190 892 1064 1333 3274 current 6 6 5 0.1 current 0.5	33 0 56 <1 1039 839 1071 1246 3357 history1 8 6 2 <1.0 history1 0.2	25 0 52 <1 1022 778 1054 1207 3154 history2 5 6 6 <1.0 history2 0.4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED	ppm	ASTM D5185m	0 0 64 0 1160 820 1160 1260 3000 limit/base >25 >20 >3.0	17 0 59 <1 1190 892 1064 1333 3274 current 6 6 5 0.1	33 0 56 <1 1039 839 1071 1246 3357 history1 8 6 2 <1.0 history1	25 0 52 <1 1022 778 1054 1207 3154 history2 5 6 6 <1.0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration	ppm	ASTM D5185m ASTM D7844 *ASTM D7844 *ASTM D7624 *ASTM D7624	0 0 64 0 1160 820 1160 1260 3000 limit/base >25 >20 >3.0	17 0 59 <1 1190 892 1064 1333 3274  current 6 6 5 0.1  current 0.5 10.2	33 0 56 <1 1039 839 1071 1246 3357 history1 8 6 2 <1.0 history1 0.2 7.3	25 0 52 <1 1022 778 1054 1207 3154 history2 5 6 6 <1.0 history2 0.4 9.1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation FLUID DEGRAI	ppm	ASTM D5185m  METHOD  ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D7844  *ASTM D7844  *ASTM D7624  *ASTM D7415  method	0 0 64 0 1160 820 1160 1260 3000 limit/base >25 >20 >3.0 limit/base >4 >20 >30 limit/base	17 0 59 <1 1190 892 1064 1333 3274 current 6 6 5 0.1 current 0.5 10.2 21.6 current	33 0 56 <1 1039 839 1071 1246 3357 history1 8 6 2 <1.0 history1 0.2 7.3 19.3 history1	25 0 52 <1 1022 778 1054 1207 3154 history2 5 6 6 <1.0 history2 0.4 9.1 20.8 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation	ppm	ASTM D5185m ASTM D7844 *ASTM D7844 *ASTM D7624 *ASTM D7624	0 0 64 0 1160 820 1160 1260 3000 limit/base >25 >20 >3.0 limit/base >4 >20 >3000	17 0 59 <1 1190 892 1064 1333 3274 current 6 6 5 0.1 current 0.5 10.2 21.6	33 0 56 <1 1039 839 1071 1246 3357 history1 8 6 2 <1.0 history1 0.2 7.3 19.3	25 0 52 <1 1022 778 1054 1207 3154 history2 5 6 6 <1.0 history2 0.4 9.1 20.8



# **OIL ANALYSIS REPORT**



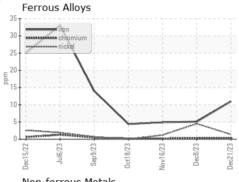


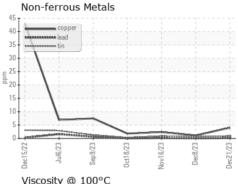


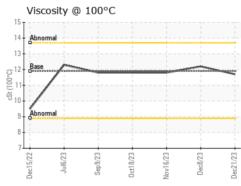
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
<b>Emulsified Water</b>	scalar	*Visual	>0.2	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG

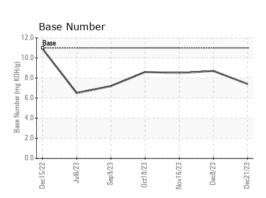
FLUID PROP	ERITES	method			history1	history2
Visc @ 100°C	cSt	ASTM D445	11.9	11.7	12.2	<b>11.8</b>

## **GRAPHS**











Laboratory Sample No. Lab Number Unique Number

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : 06049491

: GFL0102479 : 10810099

Recieved : 02 Jan 2024 Diagnosed

: 16 Jan 2024 Diagnostician : Doug Bogart

**Test Package**: FLEET (Additional Tests: FuelDilution, PercentFuel) 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)

GFL Environmental - 836 - Kansas City Hauling

7801 East Truman Road Kansas City, MO US 64126 Contact: Robert Hart

rhart@gflenv.com T: (580)461-1509